Section 2 - Alternatives

In accordance with NEPA regulations codified in 40 CFR 1502.14(a), the Alternatives section shall "Rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated."

This section presents the alternatives developed to address the project's purpose and need. The alternatives considered but not recommended for further evaluation and the alternatives carried forward for detailed evaluation are discussed below.

2.1 Alternatives Development

A broad array of alternatives were initially considered to address the goals and objectives contained in the purpose and need statement for the 11400 South FEIS Project. As described in detail below, initial transportation options were considered, then refined into preliminary alternatives. These preliminary alternatives were screened through a two-tier process, with alternatives that met the screening criteria carried forward, and alternatives that did not meet the screening criteria eliminated from further consideration. As shown in Figure 2-1 and discussed below, the final result of the screening process was four "Build" alternatives recommended for further detailed analysis. The No Build Alternative was also carried through the process to provide a baseline, as required by NEPA. A Preferred Alternative was selected after detailed analysis of these final five alternatives.

2.1.1 Initial Transportation Options

Various improvements were evaluated at a conceptual level to identify a complete set of reasonable Build Alternatives for more detailed consideration. Initial consideration of a range of alternatives identified the following possible transportation options in the study area:

- Provide an interchange at Bangerter Highway and 11400 South;
- Provide an interchange at Bangerter Highway and 11800 South;
- Provide an interchange at I-15 and 11000 South;
- Provide an interchange at I-15 and 11400 South;
- Provide an interchange at I-15 and 11800 South;
- Add new traffic lanes on 12300/12600 South;
- Add new traffic lanes on 10400/10600 South;
- Provide one-way frontage roads along the I-15 freeway;
- Provide an underpass of I-15 at 11000 South and extend 11000 South to the west;
- Provide an overpass of I-15 at 11800 South and extend 11800 South to the west;
- Provide a river crossing at 11400 South;
- Provide a river crossing at 11800 South;
- Provide modifications to the 10600 South interchange at I-15;
- Provide modifications to the 12300 South interchange at I-15;
- Re-establish a State Street connection to I-15;
- Modify/extend 11800 South to 700 East;
- Improve north-south streets, including 700 West, 1300 West, and 3200 West;
- Provide a split interchange at 11000 South (southbound entrance, northbound exit) and 11800 South (northbound entrance, southbound exit);
- Transit improvements only; and
- No Build – no new major construction, other than projects included in the WFRC 2030 Long Range Plan.

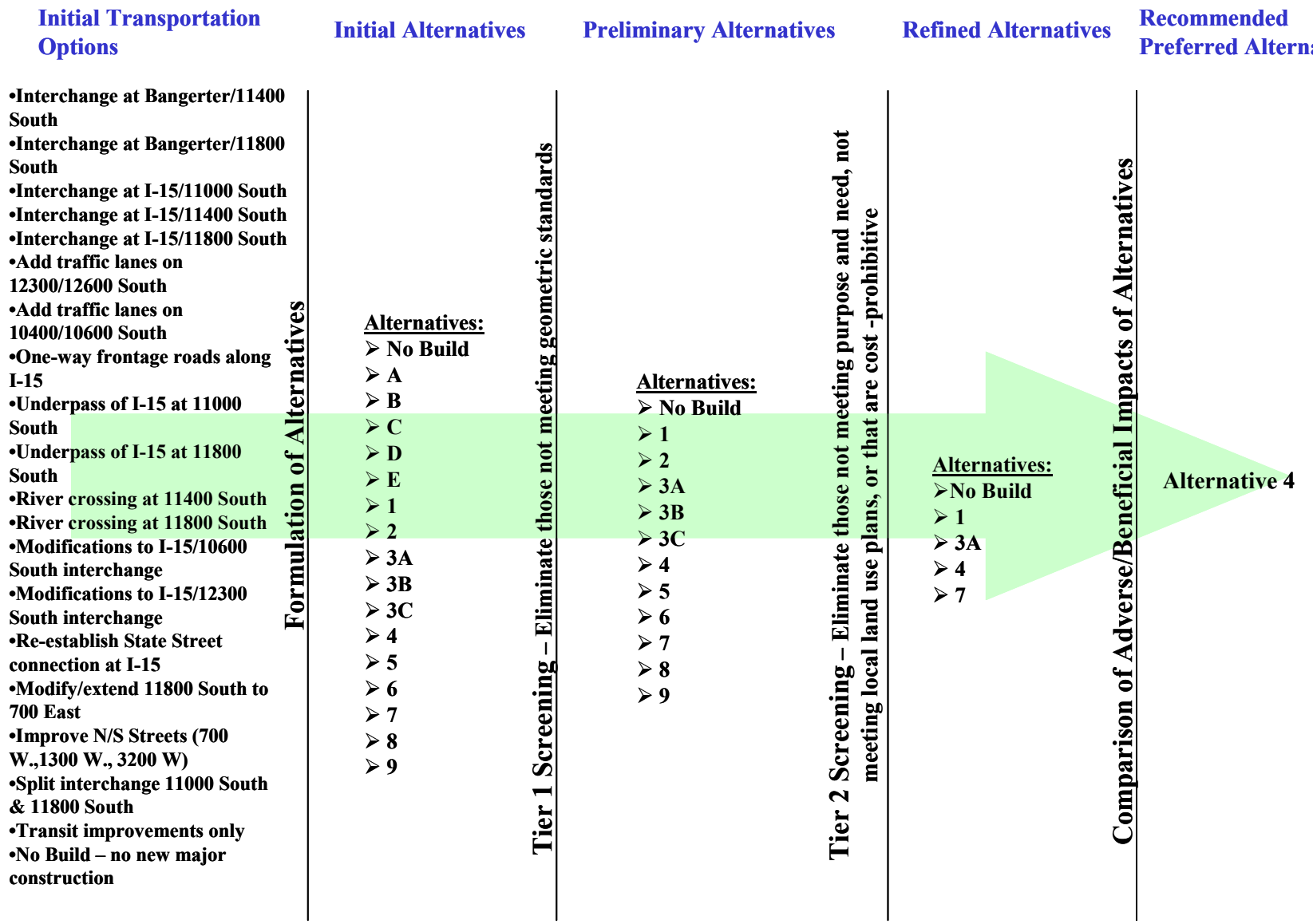


Figure 2-1. Preferred Alternative Evaluation Process

The project team considered the initial transportation options, then combined them to develop a broad spectrum of reasonable alternatives aimed at improving mobility and access in the study area. Various combinations of east-west and north-south mobility improvement options were developed into the initial alternatives shown in Figure 2-1. The project team agreed that Transportation Management (TM) systems (such as facilities to accommodate other modes of transportation including bus pull-outs, sidewalks, and bicycle paths) and improvements to increase safety at railroad crossings would be incorporated to the extent practicable into all alternatives considered.

The initial alternatives were screened through a Tier 1 screening analysis (discussed in Section 2.2) to determine which ones to carry forward as preliminary alternatives for detailed traffic analysis. Several alternatives that included freeway interchange options other than an interchange at 11400 South were considered but did not meet the Tier 1 screening criteria. The alternatives that were eliminated in the Tier 1 screening were labeled A through E for tracking purposes and the remaining alternatives were numbered sequentially from 1 to 8. Alternatives 3B, 3C, and 9, were added later based on public comments received and included the additional options of converting Bangerter Highway from an arterial to a 6-lane freeway facility and making Mountain View Corridor a 10-lane facility, rather than a 6-lane facility as identified in the WFRC Long Range Plan. The preliminary alternatives then went through the Tier 2 screening process (discussed in Section 2.3) resulting in the refined alternatives that were analyzed in detail in the FEIS. After a comparison of the refined alternatives, a Preferred Alternative was identified (Section 2.5).

2.2 Tier 1 Screening Analysis

Initial screening criteria were based on UDOT Standard Design criteria. UDOT has adopted the American Association of State and Highway Transportation Officials (AASHTO) Standards for Roadway Design as its minimum design criteria. These standards, presented in *A Policy on Geometric Design of Highways and Streets* (AASHTO 2001), are intended to provide operational efficiency, comfort, safety, and convenience for the motorist. To pass the Tier 1 screening criteria, the alternative must meet UDOT geometric and design standards. Alternatives can typically be designed to assure they meet AASHTO design standards. However, the AASHTO standards for interchange spacing could not be accommodated for the alternatives discussed and eliminated below.

2.2.1 Alternatives Eliminated from Further Consideration by the Tier 1 Screening Analysis

Of the 15 initial alternatives considered, the following five alternatives were eliminated from further consideration because they did not pass the Tier 1 screening analysis.

Alternative A

Alternative A consisted of widening 10400/10600 South and 12300/12600 South to six lanes, with a center turn lane, and providing a freeway interchange at 11000 South. There would be approximately 0.5 mile between a new interchange at 11000 South and the existing interchange at 10600 South.

AASHTO (2001) recommends 1 mile as the minimum distance between freeway interchanges in urban areas. Although there are some exceptions, an interchange spacing of less than 1 mile is not recommended in most cases and spacing less than 0.75 mile is strongly discouraged. The 11000 South interchange would be 2,720 feet south of the 10600 South interchange. The tight spacing would result in short weave distances (less than 200 feet) for both northbound and southbound directions. The short weave distance would reduce freedom of movement and induce lower

speeds, creating a failing LOS and a greater potential for accidents. This alternative was screened out because of the short weave distance and resulting poor LOS.

Alternative B

Alternative B consisted of widening 10400/10600 South and 12300/12600 South to six lanes, with a center turn lane, and providing a freeway interchange at 11800 South. There would be approximately 0.7 mile between a new interchange at 11800 South and the existing interchange at 12300 South. As mentioned previously, interchange spacing of less than 0.75 miles is strongly discouraged by AASHTO. Alternative B was eliminated because of the insufficient spacing between a new interchange at 11800 South and the existing interchange at 12300 South.

Alternative C

Alternative C consisted of providing a half-diamond interchange at 11800 South on I-15 (north side), and a half-diamond interchange at 11000 South on I-15 (south side), with 11400 South constructed west from 700 west, crossing the Jordan River. A half-diamond interchange has exit and entrance ramps in one direction only, rather than two directions as in a full-diamond interchange. As shown in Figure 2-2, this alternative would include a northbound entrance ramp and a southbound exit ramp at 11800 South, and a southbound entrance ramp and a northbound exit ramp at 11000 South.

Alternative C was eliminated because there would be less than 1 mile between the new interchange at 11000 South and the existing interchange at 10600 South (approximately 0.5 mile), and there would be less than 1 mile between the new interchange at 11800 South and the existing interchange at 12300 South.

Alternative D

Alternative D included the same half-diamond interchanges as in Alternative C, but instead of extending 11400 South across the Jordan River, both 12300/12600 South and 10400/10600 South would be widened to six lanes, with a center turn lane. This alternative was also eliminated because of the insufficient spacing of interchanges on the freeway.

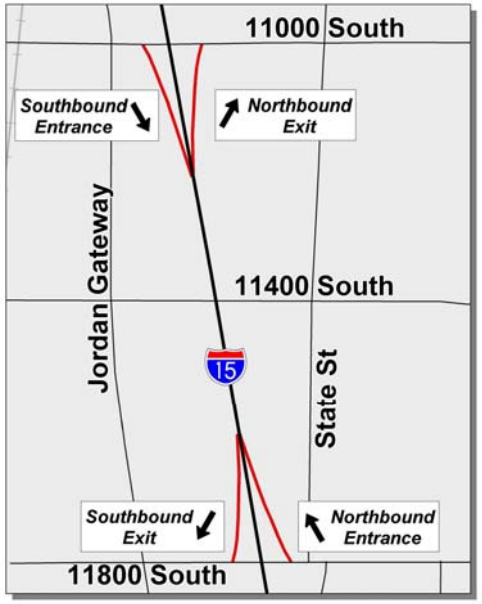


Figure 2-2. Half-Diamond Interchange

Alternative E

Alternative E included the same half-diamond interchanges as Alternatives C and D, with a one-way frontage system parallel to I-15 from 10600 South to 12300 South. As with Alternatives C and D, this alternative was eliminated because of the insufficient spacing of interchanges on the freeway.

2.2.2 Alternatives Carried Forward as a Result of the Tier 1 Screening Analysis

Ten alternatives, including the No Build Alternative, were carried forward from the Tier 1 screening process, and two additional alternatives were developed based on input from members of the TIE. These 12 alternatives were presented to the public in a series of public meetings in November 2003. The alternatives were refined when possible by adding components that would improve LOS within the study area. Additionally, components of an alternative that did not help to improve mobility were eliminated where appropriate. The refined preliminary alternatives (for which descriptions follow) show the components that were added (shown in blue ***italicized text***) or eliminated (shown in ~~**strike-through text**~~) after the November 2003 public meetings. The revised alternatives were presented to the public in January 2004.

Subsequent to the January 2004 meetings, one additional revision was made to Alternative 4. Alternative 4 now widens 10600 South to six lanes from Jordan Gateway to River Front Parkway, rather than from Jordan Gateway to Redwood Road. This modification, which would cause three less Section 4(f) resource impacts, was incorporated into Alternative 4 for several reasons: 1) South Jordan City has indicated that they are in support of Alternative 4, with the exception of widening of 10600 South to Redwood Road to accommodate six travel lanes; 2) the Section 4(f) regulations require alternatives to avoid impacts to 4(f) resources when deemed prudent and feasible; and 3) with this modification, Alternative 4 can be demonstrated to be in full compliance with the Clean Air Act transportation conformity requirements of the LRP.

It is assumed that all of the components included in the No Build Alternative will be implemented regardless of which alternative is selected. It is implied that intersections along a roadway or portion of roadway that is being widened would be improved to correctly tie in with the widened roadway.

No Build Alternative

The No Build Alternative is defined as no new major construction within the study area, other than projects that are already in the WFRC Long Range Plan. Minor spot improvements, TM measures, and/or signal projects may be constructed under the No Build Alternative.

Following are the roadway and transit improvement projects that are included in the WFRC Long Range Plan (LRP) (Figure 2-3). Phase 1 improvements are scheduled to occur between 2004 and 2012, Phase 2 improvements are scheduled between 2013 and 2022, and Phase 3 improvements between 2023 and 2030.

1. Widen 12300/12600 South to four lanes* from Bangerter Highway to 700 East (LRP Phase 1 – currently under construction).
2. Widen 10400 South to four lanes* from Bangerter Highway to Redwood Road (LRP Phase 1).
3. Widen Redwood Road to four lanes* from Bangerter Highway to 10400 South (LRP Phase 1).
4. Widen I-15 to 10 lanes from 10600 South to the Alpine Exit (LRP Phase 1 through Phase 3 – currently under construction from 10600 South to point of the mountain).
5. Widen 700 East to four lanes* from 12300 South to 9400 South (LRP Phase 1).
6. Widen State Street to four lanes* from 11400 South to 12300 South (LRP Phase 1 – construction planned for 2005).
7. Widen State Street to six lanes* from 7200 South to 11400 South (LRP Phase 1).
8. Develop Mountain View Corridor transportation route (LRP Phase 1 through Phase 3).

9. Construct Draper light rail extension (LRP Phase 2).
10. Construct Mid-Jordan light rail extension (LRP Phase 1).
11. Construct Commuter Rail from Utah County to Weber County (LRP Phase 1).
12. Widen 11400 South to four lanes* from I-15 to 700 East (LRP Phase 1).
13. Develop Redwood Road Bus Rapid Transit (BRT) line from 14400 South to 8000 South (LRP Phase 2).
14. Develop Mountain View BRT line from 13400 South to 4700 South (LRP Phase 2).
15. Widen 12600 South to four lanes* from Bangerter Highway to SR-111 (LRP Phase 3).
16. Widen 10400 South to four lanes* from Bangerter Highway to SR-111 (LRP Phase 2)

    *Plus an additional center lane or median.

Transportation Management refers to programs and policies designed to reduce travel demand and to improve utilization of the existing transportation system. TM encompasses both transportation demand management (TDM) and transportation system management (TSM). An effective TM program includes a combination of incentives, disincentives, and supporting measures to encourage the use of transit, carpools, bicycles, and walking.

Disincentives, such as charging for parking, tend to be the most effective TM measures. Because of the out-of-pocket expenses, drivers are more likely to seek out other transportation alternatives, combine trips, or eliminate non-essential trips.

Incentives, such as improved transit service or reduced rates for high-occupancy vehicle (HOV) parking, make non-single occupancy vehicle (non-SOV) alternatives more attractive without penalizing SOV users.

Supporting measures provide information services to assist commuters, residents, and visitors in selecting non-SOV alternatives. Examples include carpool ride-matching and guaranteed ride home programs.

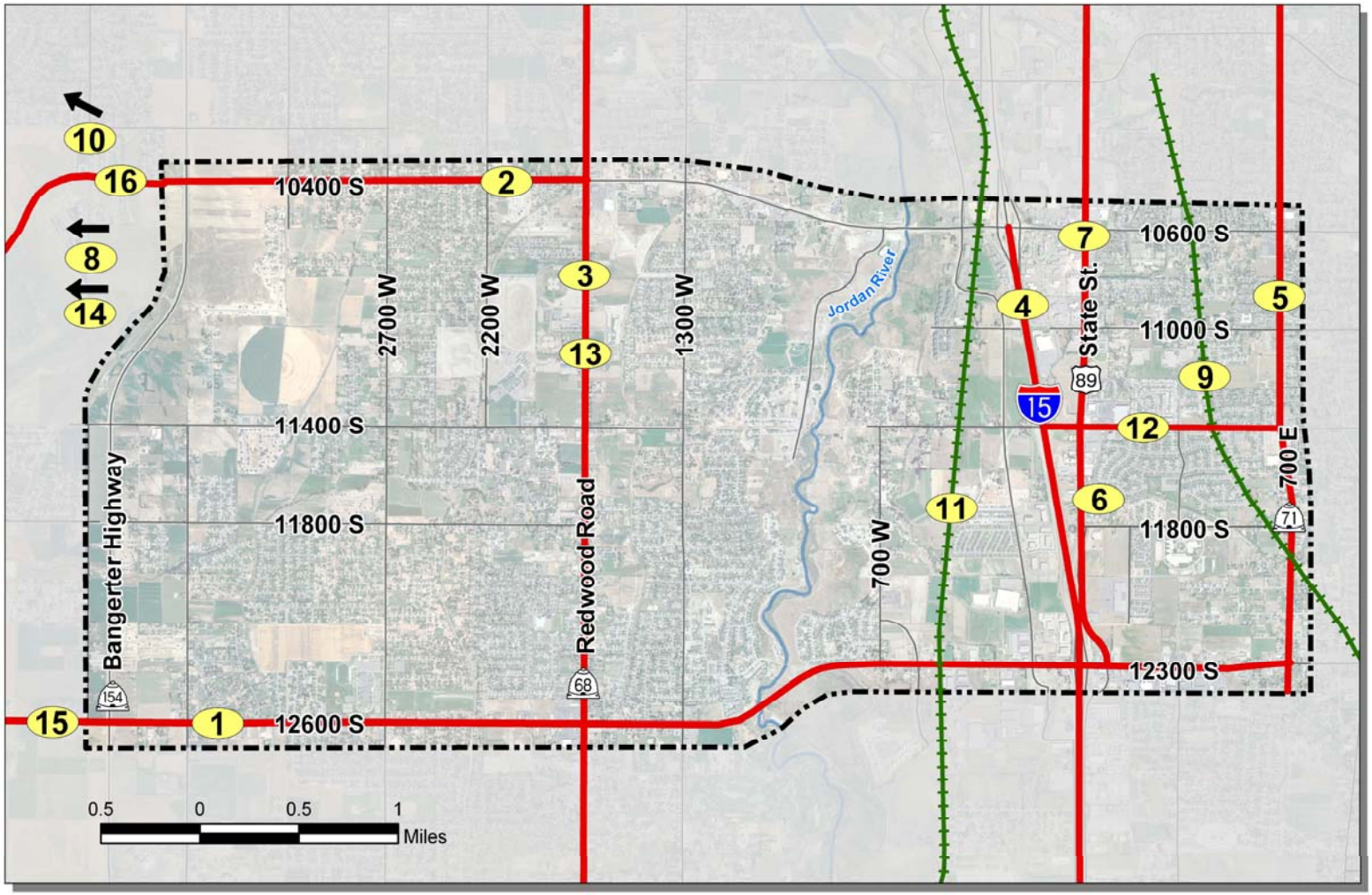
In addition to the roadway projects previously discussed, the No Build Alternative also includes the following TM measures that are identified in the WFRC Long-Range Plan:

- New bus service within the corridor including Bangerter Highway, 10400/10600 S, 11400 S, and 12300/12600 S;
- Increased bus service within the corridor, including high frequency routes along 10400/10600 S, 3700 W, Redwood Rd, Lone Peak Parkway/Jordan Gateway, State St, and 700 E;
- New/additional bus park-and-ride lots along Redwood Road at 11100 S and 12300 S and at 10600 S and State Street, and a new light rail park-and-ride near 1300 East and 12300 S; and
- New HOV lanes on I-15 from 10600 S through the project area.

Additional TM measures that were considered included:

- Demand-responsive transit;
- Cross-town shuttle;
- Free and reduced fare transit zones;
- Preferential HOV parking; and
- HOV lanes along arterials (State Street and 10600 South).

However, because these additional TM measures were expected to reduce traffic volumes by only 1 to 2 percent (See Appendix A, Wilson & Co. Sept. 2003 memo), they were not included in the No Build Alternative. TM was not considered as a standalone alternative because it is already incorporated into the No Build Alternative. TM strategies alone would not meet the project purpose and need to improve mobility and support economic development in the study area.



Note: Numbers correspond to No Build Alternative listing.

Figure 2-3. No Build Alternative

Alternative 1

In addition to the projects and TM measures identified under the No Build Alternative, Alternative 1 includes the following components (Figure 2-4). As mentioned previously, the italics indicate components that were added to the alternative and the strike-through text indicates components that were eliminated.

A. Widen 10400/10600 South to six lanes* from Bangerter Highway to Jordan Gateway.

B. Widen 12300/12600 South to six lanes* from Bangerter Highway to Lone Peak Parkway.

C. Add a river crossing at 11400 South and widen to four lanes. *

D. Add I-15 underpass at 11000 South, extend to the west to Jordan Gateway.

E. Add I-15 overpass at 11800 South, extend to the west to Lone Peak Parkway.

F. Modifications to I-15 interchange at 10600 South – triple left turn lanes for southbound to eastbound traffic.

G. *Widen State Street to six lanes* from 12300 South to 11400 South.*

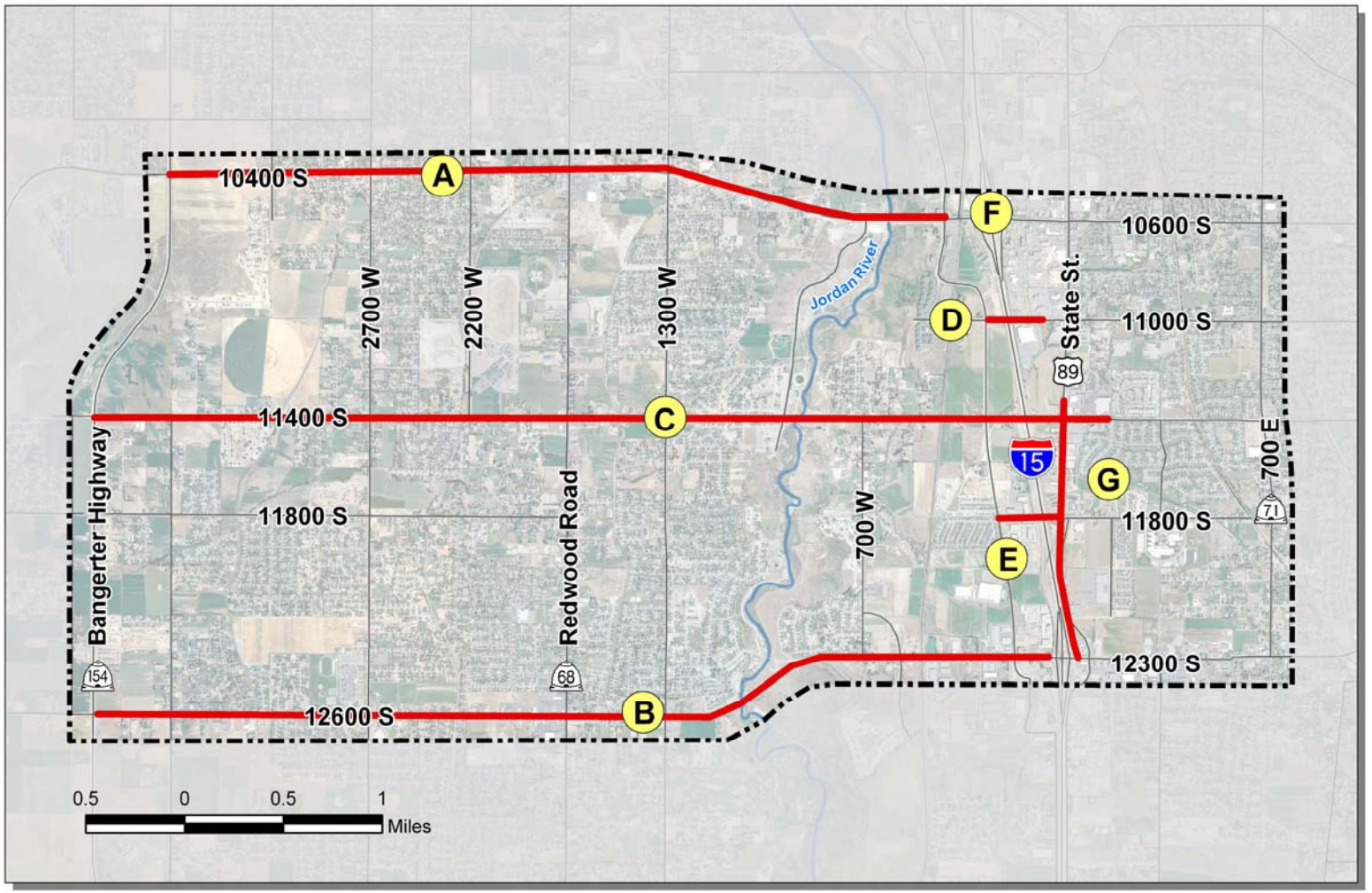
~~**H. Possible modifications to I-15 interchange at 12300 South.**~~

~~**I. Realign Jordan Gateway at 10600 South.**~~

* Plus an additional center turn lane or median.

The changes shown in *italics* and ~~**strike-through**~~ text were based on the results of the initial traffic analysis. This analysis showed that:

- Widening State Street from 12300 South to 11400 South would be necessary to address capacity issues at the State Street intersections with 11400 South and 12300 South;
- Improvements would not be necessary at I-15 and 12300 South because the interchange would be operating at acceptable LOS in 2030 (LOS D or better); and
- By reconstructing the ramp on I-15 southbound to 10600 South and signalizing the right turn, the traffic weave problem at 10600 South and Jordan Gateway would be sufficiently addressed and realigning Jordan Gateway would not be necessary.



Note: Letters correspond to Alternative components listed above.

Figure 2-4. Alternative 1

Alternative 2

In addition to the projects and TM measures identified under the No Build Alternative, Alternative 2 (Figure 2-5) includes the following components:

A. Widen 10400/10600 South to six lanes* from Bangerter Highway to Jordan Gateway.

B. Widen 12300/12600 South to six lanes* from Bangerter Highway to Lone Peak Parkway.

C. Add an interchange at 11400 South and I-15 (4-lane* section to 700 West, no river crossing).

D. Modifications to I-15 interchange at 10600 South – triple left turn lanes for southbound to eastbound traffic.

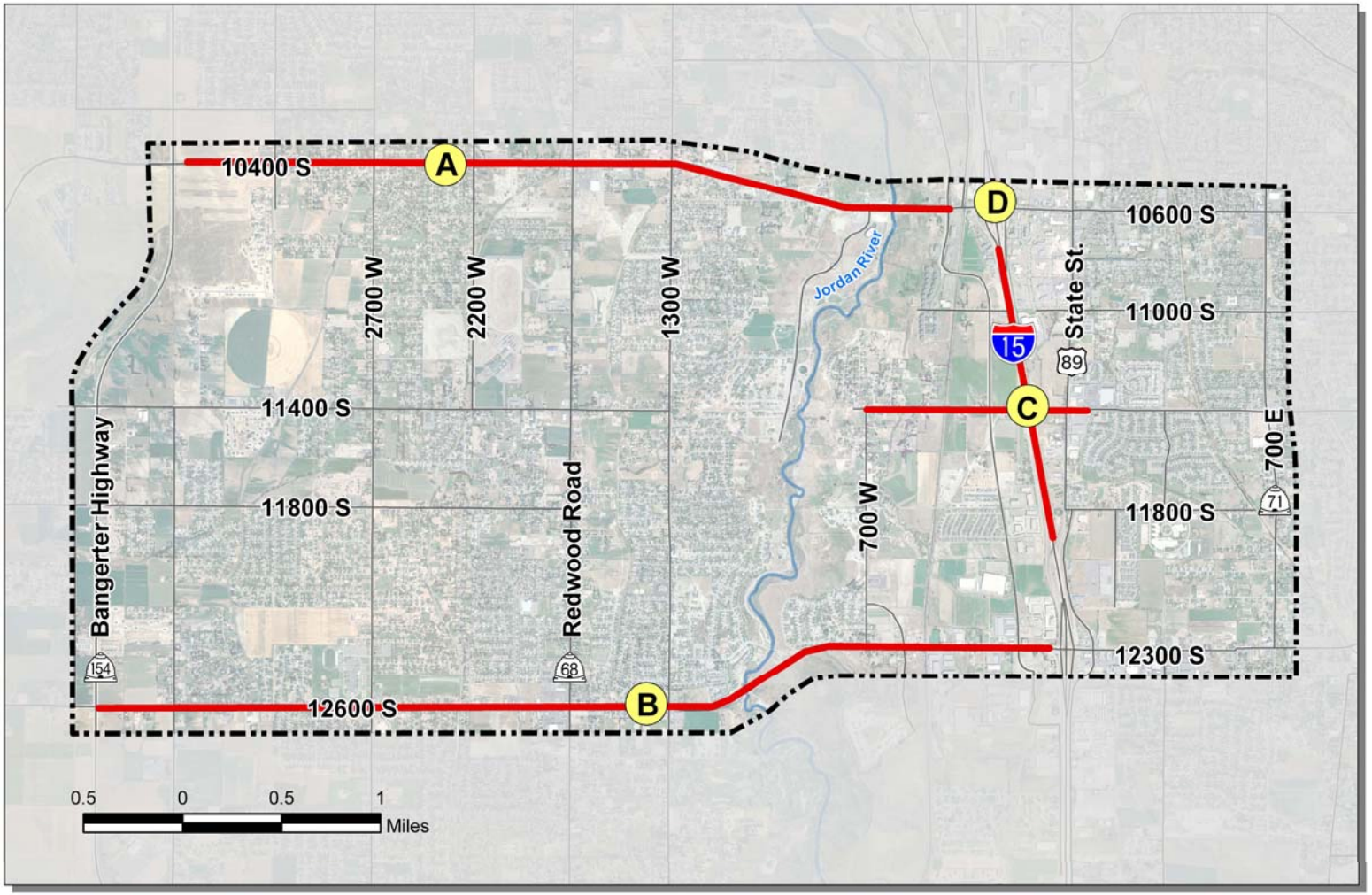
~~**E. Possible modifications to I-15 interchange at 12300 South.**~~

~~**F. Improve 700 West as needed to handle extra traffic.**~~

* Plus an additional center turn lane or median

The changes shown in ~~**strike-through**~~ text were based on the results of the initial traffic analysis. This analysis showed that:

- Improvements would not be necessary at I-15 and 12300 South because the interchange would be operating at an acceptable LOS in 2030 (LOS D or better); and
- Improvements along 700 West would not be necessary, because Lone Peak Parkway is a parallel facility with enough capacity to handle north-south traffic demand in the area.



Note: Letters correspond to Alternative components listed above.

Figure 2-5. Alternative 2

Alternative 3A

Alternative 3A was originally called Alternative 3. However, based on citizen input received, two variations of Alternative 3 were added to the preliminary alternatives list and further evaluated. Alternative 3 was renamed Alternative 3A, and the two variations, shown following this alternative, were named 3B and 3C.

In addition to the projects and TM measures identified under the No Build Alternative, Alternative 3A (Figure 2-6) includes the following components:

A. Widen 10400/10600 South to six lanes* from Bangerter Highway to Jordan Gateway.

B. Widen 12300/12600 South to six lanes* from Bangerter Highway to Lone Peak Parkway.

C. Modifications to I-15 interchange at 10600 South – triple left turn lanes for southbound to eastbound traffic.

D. Add I-15 underpass at 11000 South; extend to the west to Jordan Gateway.

E. Add I-15 overpass at 11800 South; extend to the west to Lone Peak Parkway.

F. *Widen Jordan Gateway to six lanes* from 10600 South to 12300 South.*

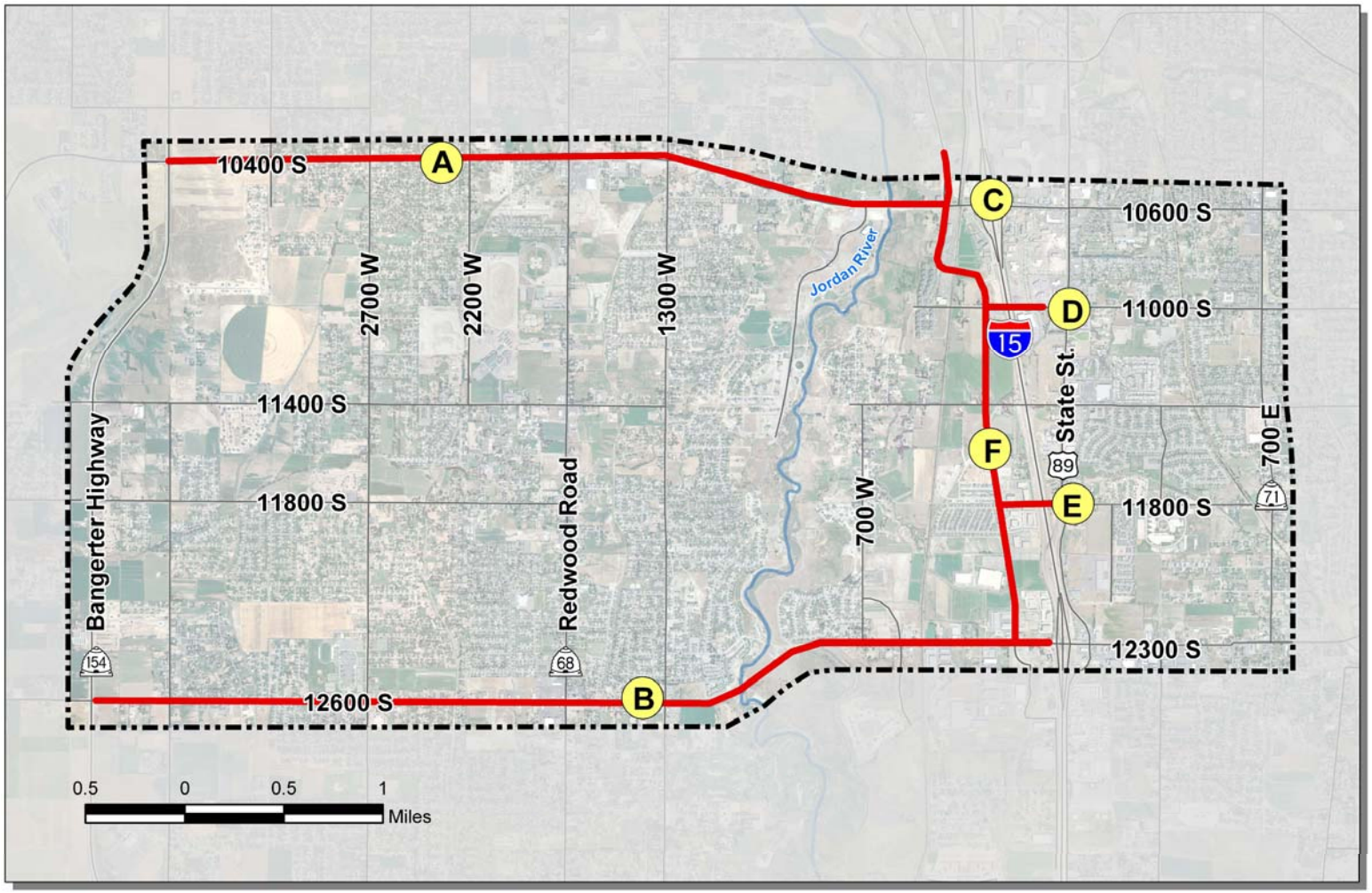
~~**G. Possible modifications to I-15 interchange at 12300 South.**~~

~~**H. Realign Jordan Gateway at 10600 South.**~~

* Plus an additional center turn lane or median.

The changes shown in *italics* and ~~**strike-through**~~ text were based on the results of the initial traffic analysis. This analysis showed that:

- Widening Jordan Gateway/Lone Peak Parkway to six lanes would be necessary to address north-south capacity issues at 10600 South and 12300 South;
- Improvements would not be necessary at I-15 and 12300 South because the interchange would be operating at acceptable LOS in 2030 (LOS D or better); and
- By reconstructing the ramp on I-15 southbound to 10600 South and signalizing the right turn, the traffic weave problem at 10600 South and Jordan Gateway would be sufficiently addressed and realigning Jordan Gateway would not be necessary.



Note: Letters correspond to Alternative components listed above.

Figure 2-6. Alternative 3A

Alternative 3B

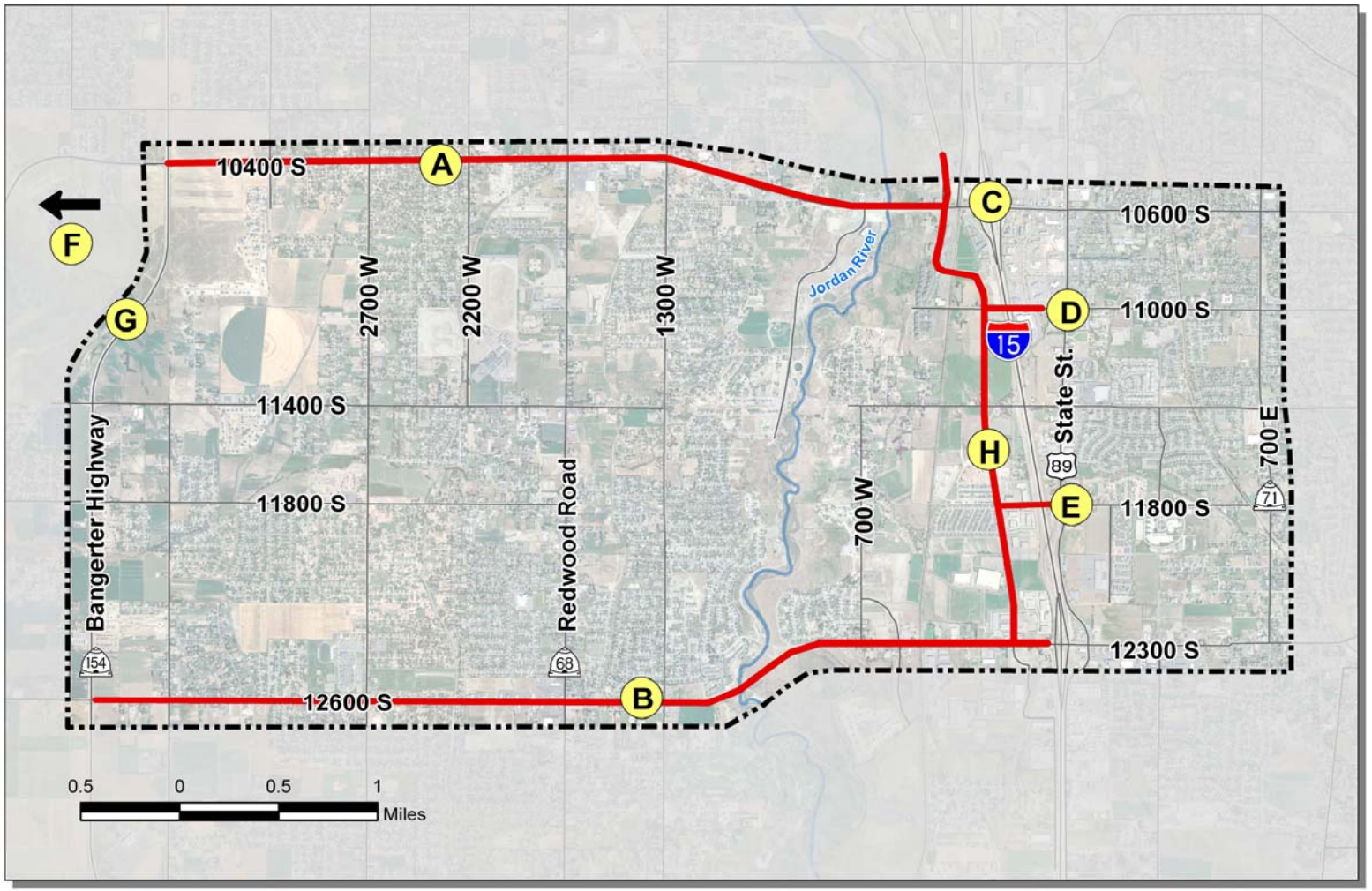
In addition to the projects and TM measures identified under the No Build Alternative, Alternative 3B (Figure 2-7) includes the following components.

A. Widen 10400/10600 South to six lanes* from Bangerter Highway to Jordan Gateway.
B. Widen 12300/12600 South to six lanes* from Bangerter Highway to Lone Peak Parkway.
C. Modifications to I-15 interchange at 10600 South – triple left turn lanes for southbound to eastbound traffic.
D. Add I-15 underpass at 11000 South; extend to the west to Jordan Gateway.
E. Add I-15 overpass at 11800 South; extend to the west to Lone Peak Parkway.
F. Make Mountain View Corridor a 10-lane freeway instead of the planned 6-lane facility.
G. Make Bangerter Highway a freeway facility with six lanes.
H. *Widen Jordan Gateway to six lanes* from 10600 South to 12300 South.*
~~**I. Possible modifications to I-15 interchange at 12300 South.**~~
~~**J. Realign Jordan Gateway at 10600 South.**~~

* Plus an additional center turn lane or median.

The changes shown in *italics* and ~~**strike-through**~~ text were based on the results of the initial traffic analysis. This analysis showed that:

- Widening Jordan Gateway/Lone Peak Parkway to six lanes would be necessary to address north-south capacity issues at 10600 South and 12300 South;
- Improvements would not be necessary at I-15 and 12300 South because the interchange would be operating at an acceptable LOS in 2030 (LOS D or better); and
- By reconstructing the ramp on I-15 southbound to 10600 South and signalizing the right turn, the traffic weave problem at 10600 South and Jordan Gateway would be sufficiently addressed and realigning Jordan Gateway would not be necessary.



Note: Letters correspond to Alternative components listed above.

Figure 2-7. Alternative 3B

Alternative 3C

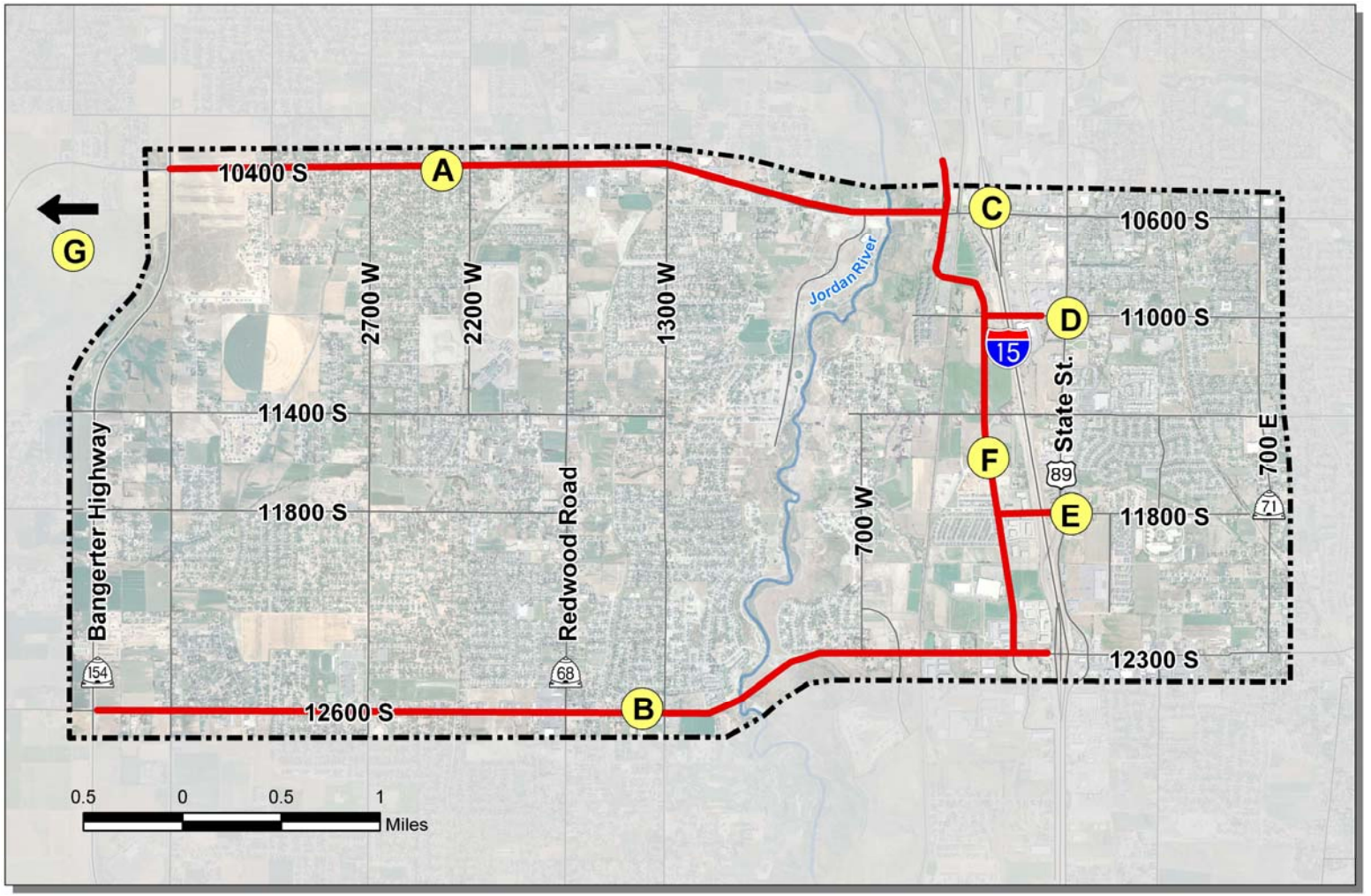
In addition to the projects and TM measures identified under the No Build Alternative, Alternative 3C (Figure 2-8) includes the following components.

A. Widen 10400/10600 South to six lanes* from Bangerter Highway to Jordan Gateway.
B. Widen 12300/12600 South to six lanes* from Bangerter Highway to Lone Peak Parkway.
C. Modifications to I-15 interchange at 10600 South – triple left turn lanes for southbound to eastbound traffic.
D. Add I-15 underpass at 11000 South; extend to the west to Jordan Gateway.
E. Add I-15 overpass at 11800 South; extend to the west to Lone Peak Parkway.
F. Widen Jordan Gateway/Lone Peak Parkway to six lanes* from 12300 South to 10600 South.
G. Make Mountain View Corridor a 10-lane freeway instead of the planned 6-lane facility.
~~**H. Possible modifications to I-15 interchange at 12300 South.**~~
~~I. **Realign Jordan Gateway at 10600 South.**~~

* Plus an additional center turn lane or median.

The changes shown in ~~**strike-through**~~ text were based on the results of the initial traffic analysis. This analysis showed that:

- Improvements would not be necessary at I-15 and 12300 South because the interchange would be operating at an acceptable LOS in 2030 (LOS D or better); and
- By reconstructing the ramp on I-15 southbound to 10600 South and signalizing the right turn, the traffic weave problem at 10600 South and Jordan Gateway would be sufficiently addressed and realigning Jordan Gateway would not be necessary.



Note: Letters correspond to Alternative components listed above.

Figure 2-8. Alternative 3C

Alternative 4

In addition to the projects and TM measures identified under the No Build Alternative, Alternative 4 (Figure 2-9) includes the following components.

A. Add an interchange at 11400 South and I-15, with auxiliary lane on I-15 northbound and I-15 southbound between 11400 South and 10600 South.

B. Add a river crossing at 11400 South and widen to four lanes* from Bangerter Highway to State Street.

C. Intersection improvements at 11400 South and Bangerter Highway.

D. Intersection improvements on Jordan Gateway/Lone Peak Parkway at 10600 South, 11400 South, and 12300 South.

E. Modifications to I-15 interchange at 10600 South – triple left turn lanes for southbound to eastbound traffic.

F. Widen 10600 South to six lanes from River Front Parkway to Jordan Gateway.*

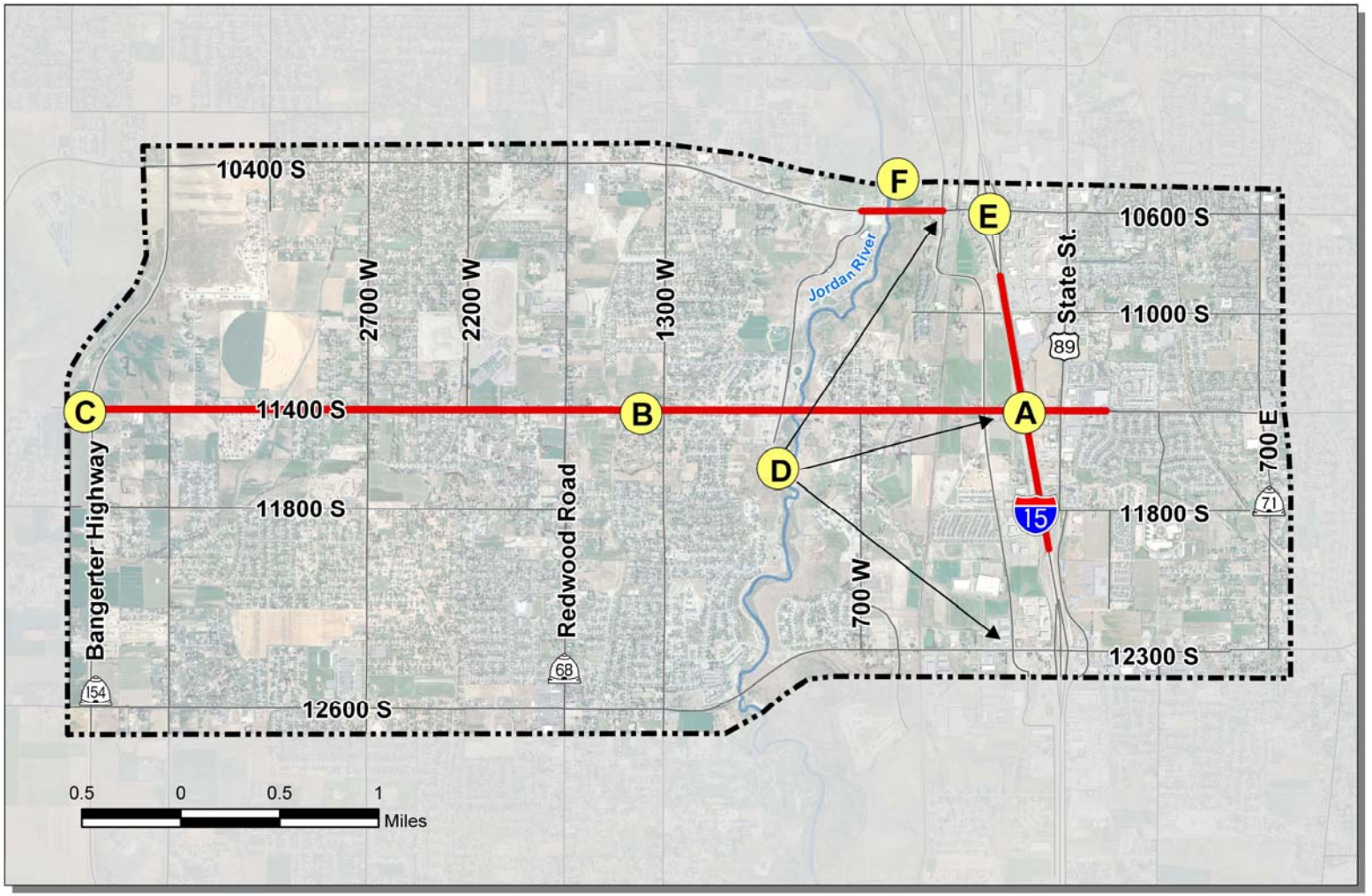
~~**G. Widen 10600 South to six lanes* from just west of Redwood Road to Jordan Gateway.**~~

* Plus an additional center turn lane or median.

The changes shown in *italics* and ~~**strike through**~~ text were based on the results of the initial traffic analysis, on discussions with South Jordan City, and on the Section 4(f) evaluation. The traffic analysis showed that:

- Improvements at Jordan Gateway/Lone Peak Parkway intersections with 10600 South, 11400 South, and 12300 South would be necessary to address capacity issues at those intersections; and
- Adding a triple left turn lane from I-15 southbound to 10600 eastbound would be necessary to address capacity issues at the interchange.

The traffic analysis also showed that widening 10600 South to six lanes from Jordan Gateway to just west of Redwood Road would address capacity issues at the 10600 South intersections with both Jordan Gateway and Redwood Road. However, because South Jordan City was opposed to the roadway widening with this alternative, and to address Section 4(f) considerations as discussed in Section 5, the roadway widening along 10600 South was shortened to extend from Jordan Gateway to just west of River Front Parkway. Traffic analysis of this modification showed that although it would not address capacity issues at the 10600 South/Redwood Road intersection, it would still address capacity issues at the 10600 South/Jordan Gateway intersection.



Note: Letters correspond to Alternative components listed above.

Figure 2-9. Alternative 4

Alternative 5

In addition to the projects and TM measures identified under the No Build Alternative, Alternative 5 (Figure 2-10) includes the following components:

A. Add an interchange at 11400 South and I-15.

B. 11400 South would cross the Jordan River and tie into 11800 South at 1300 West (two river crossing location options were evaluated as shown); widen to four lanes* from Bangerter Highway to State Street.

C. Interchange at 11800 South and Bangerter Highway.

D. Widen 10600 South to six lanes from just west of Redwood Road to Jordan Gateway.*

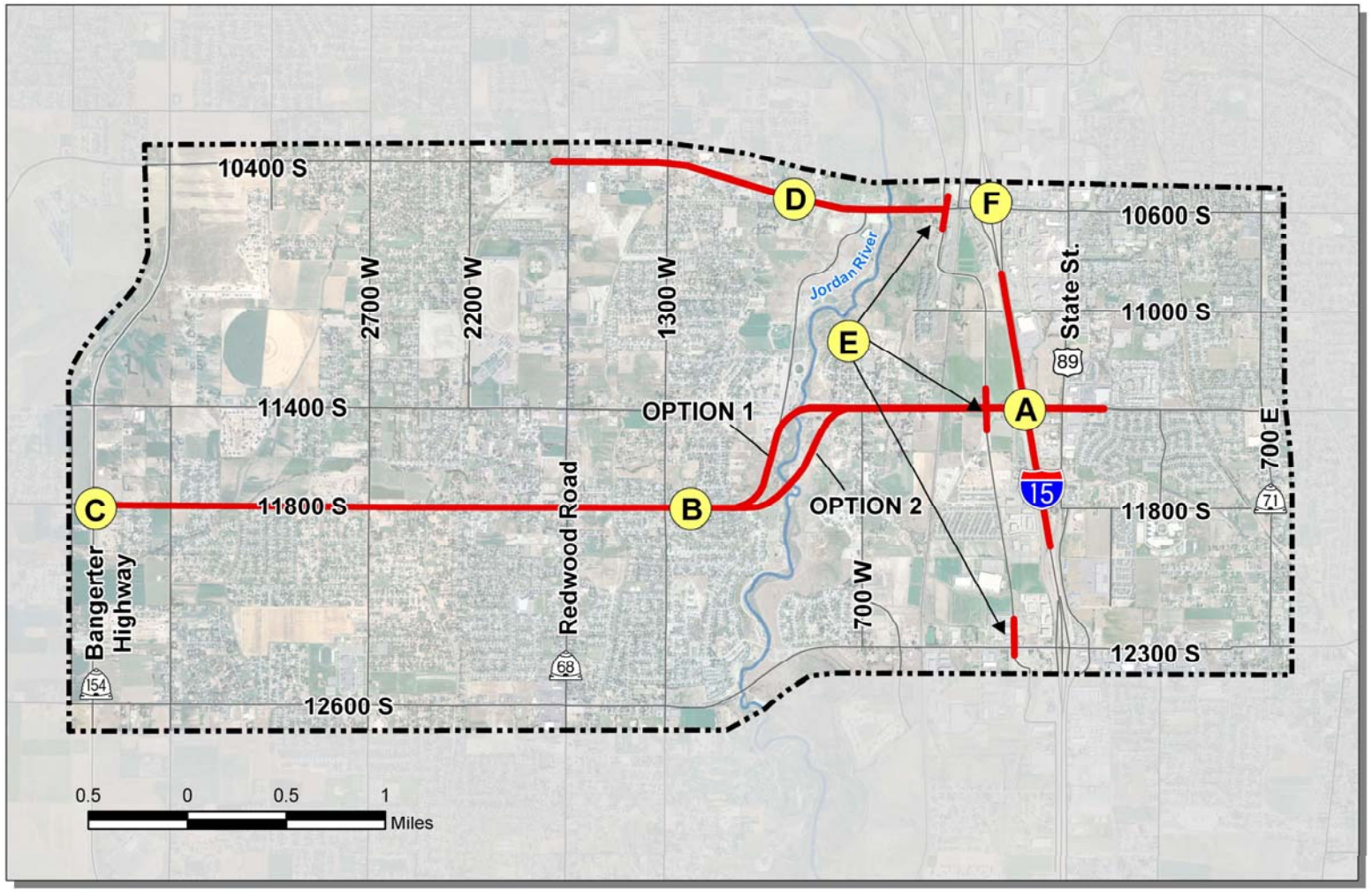
E. Intersection improvements on Jordan Gateway/Lone Peak Parkway at 10600 South, 11400 South, and 12300 South.

F. Modifications to I-15 interchange at 10600 South – triple left turn lanes for southbound to eastbound traffic.

* Plus an additional center turn lane or median.

The changes shown in *italics* were based on the results of the initial traffic analysis. This analysis showed that:

- Widening 10600 South to six lanes would be necessary to address capacity issues at the 10600 South intersections with Jordan Gateway and Redwood Road;
- Improvements at Jordan Gateway/Lone Peak Parkway intersections with 10600 South, 11400 South, and 12300 South would be necessary to address capacity issues at those intersections; and
- Adding a triple left turn lane from I-15 southbound to 10600 eastbound would be necessary to address capacity issues at the interchange.



Note: Letters correspond to Alternative components listed above.

Figure 2-10. Alternative 5

Alternative 6

In addition to the projects and TM measures identified under the No Build Alternative, Alternative 6 (Figure 2-11) includes the following components:

A. Add one-way frontage roads along I-15 between 12300 South and 10600 South.

B. Add a river crossing at 11400 South and widen to four lanes* from Bangerter Highway to State Street.

C. Interchange modifications required at I-15 and 10600 South.

D. Interchange modifications required at I-15 and 12300 South.

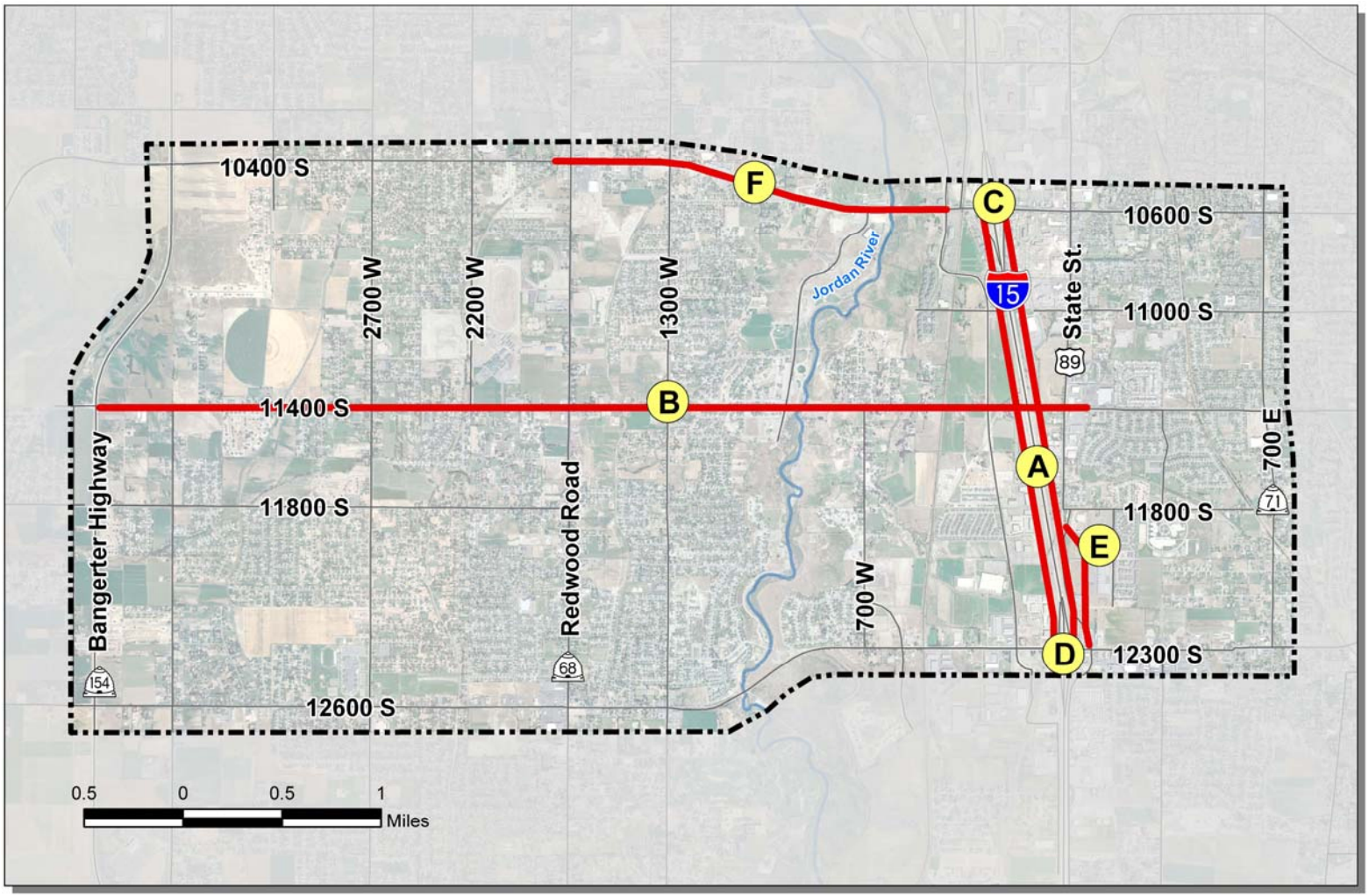
E. Realign State Street between 12300 South and 11800 South.

F. Widen 10600 South to six lanes from just west of Redwood Road to Jordan Gateway.*

* Plus an additional center turn lane or median.

The changes shown in *italics* were based on the results of the initial traffic analysis. This analysis showed that:

- Widening 10600 South to six lanes would be necessary to address capacity issues at the 10600 South intersections with Jordan Gateway and Redwood Road.



Note: Letters correspond to Alternative components listed above.

Figure 2-11. Alternative 6

Alternative 7

In addition to the projects and TM measures identified under the No Build Alternative, Alternative 7 (Figure 2-12) includes the following components:

A. Add a river crossing at 11400 South and widen to four lanes* from Bangerter Highway to State Street.

B. Intersection improvements at 11400 South and Bangerter Highway.

C. Widen 10600 South to six lanes from just west of Redwood Road to Jordan Gateway.

D. Widen Jordan Gateway/Lone Peak Parkway to six lanes from 12300 South to 10600 South.*

E. Modifications to I-15 interchange at 10600 South – triple left turn lanes for southbound to eastbound traffic.

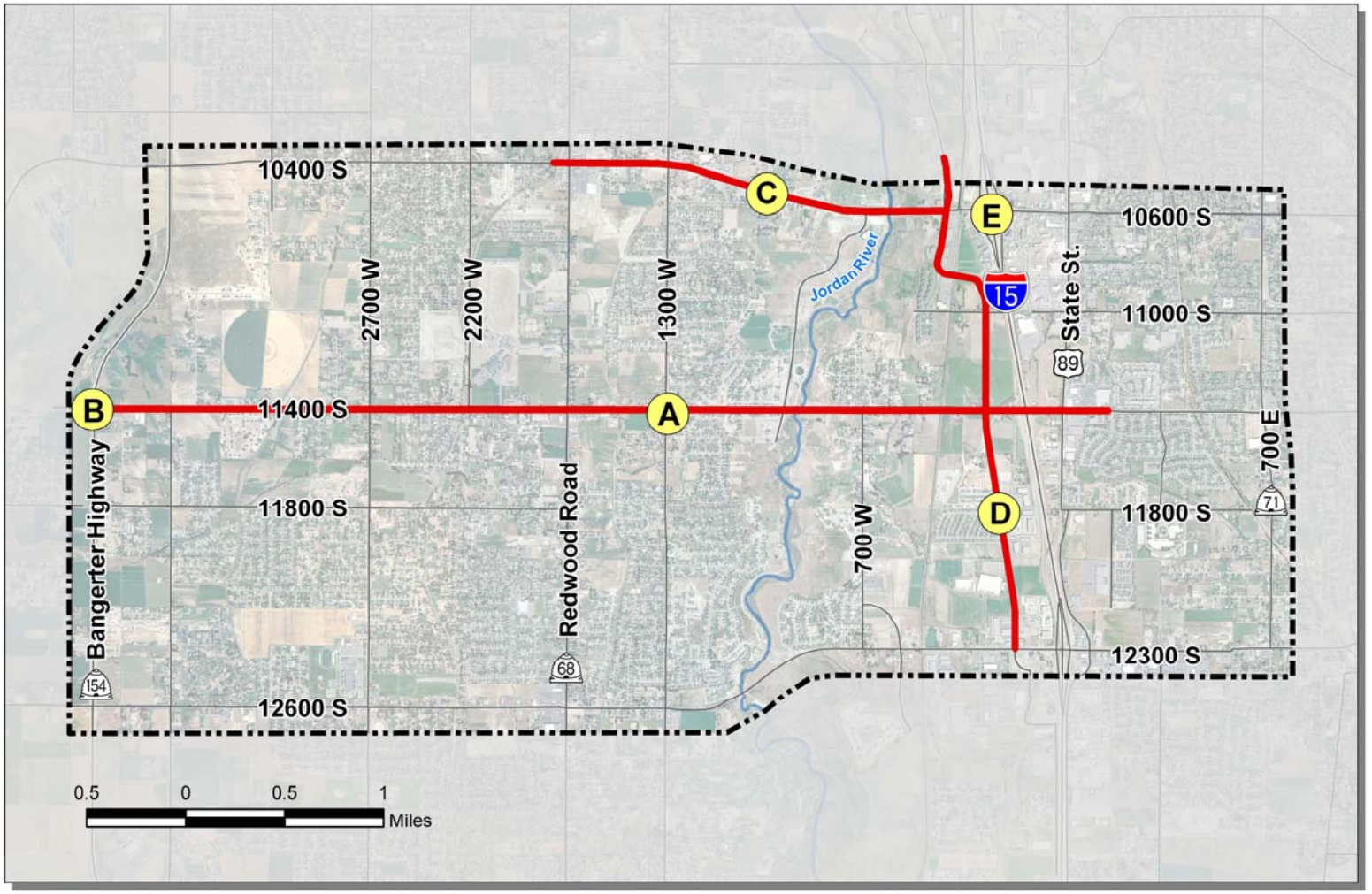
~~**F. Possible modifications to I-15 interchange at 12300 South.**~~

~~**G. Realign Jordan Gateway at 10600 South.**~~

* Assumes an additional center turn lane or median.

The changes shown in *italics* and ~~**strike-through**~~ text were based on the results of the initial traffic analysis. This analysis showed that:

- Widening 10600 South to six lanes would be necessary to address capacity issues at the 10600 South intersections with Jordan Gateway and Redwood Road;
- Widening Jordan Gateway/Lone Peak Parkway to six lanes would be necessary to address north-south capacity issues at 10600 South and 12300 South;
- Improvements would not be necessary at I-15 and 12300 South because the interchange would be operating at an acceptable LOS in 2030 (LOS D or better); and
- By reconstructing the ramp on I-15 southbound to 10600 South and signalizing the right turn, the traffic weave problem at 10600 South and Jordan Gateway would be sufficiently addressed and realigning Jordan Gateway would not be necessary.



Note: Letters correspond to Alternative components listed above.

Figure 2-12. Alternative 7

Alternative 8 – Transit Only

In addition to the projects and TM measures identified under the No Build Alternative, Alternative 8 includes additional high-frequency bus routes, additional standard bus routes, additional bus service on existing routes, and additional park-and-ride lots. Although specific bus routes and park-and-ride lot locations have not been identified, this alternative assumed tripling of the existing bus service from what is included in the WFRC 2030 Long Range Plan. Because of the substantial major capital investment transit improvement projects already included in the WFRC Long Range Plan, no additional light rail, commuter rail, or BRT is planned under this alternative.

Alternative 9

In addition to the projects and TM measures identified under the No Build Alternative, Alternative 9 (Figure 2-13) includes the following components:

A. Add one-way frontage roads along I-15 between 12300 South and 10600 South.
B. Widen 10400/10600 South to six lanes* from Bangerter Highway to Jordan Gateway.
C. Widen 12300/12600 South to six lanes* from Bangerter Highway to Lone Peak Parkway.
D. Interchange modifications required at I-15 and 10600 South.
E. Interchange modifications required at I-15 and 12300 South.
F. Realign State Street between 12300 South and 11800 South.
G. Add I-15 underpass at 11000 South; extend to the west to Jordan Gateway.
H. Add I-15 overpass at 11800 South; extend to the west to Lone Peak Parkway.
I. Make Mountain View Corridor a 10-lane freeway instead of the planned 6-lane facility.
J. Make Bangerter Highway a freeway facility with six lanes.
~~**K. Realign Jordan Gateway at 10600 South.**~~

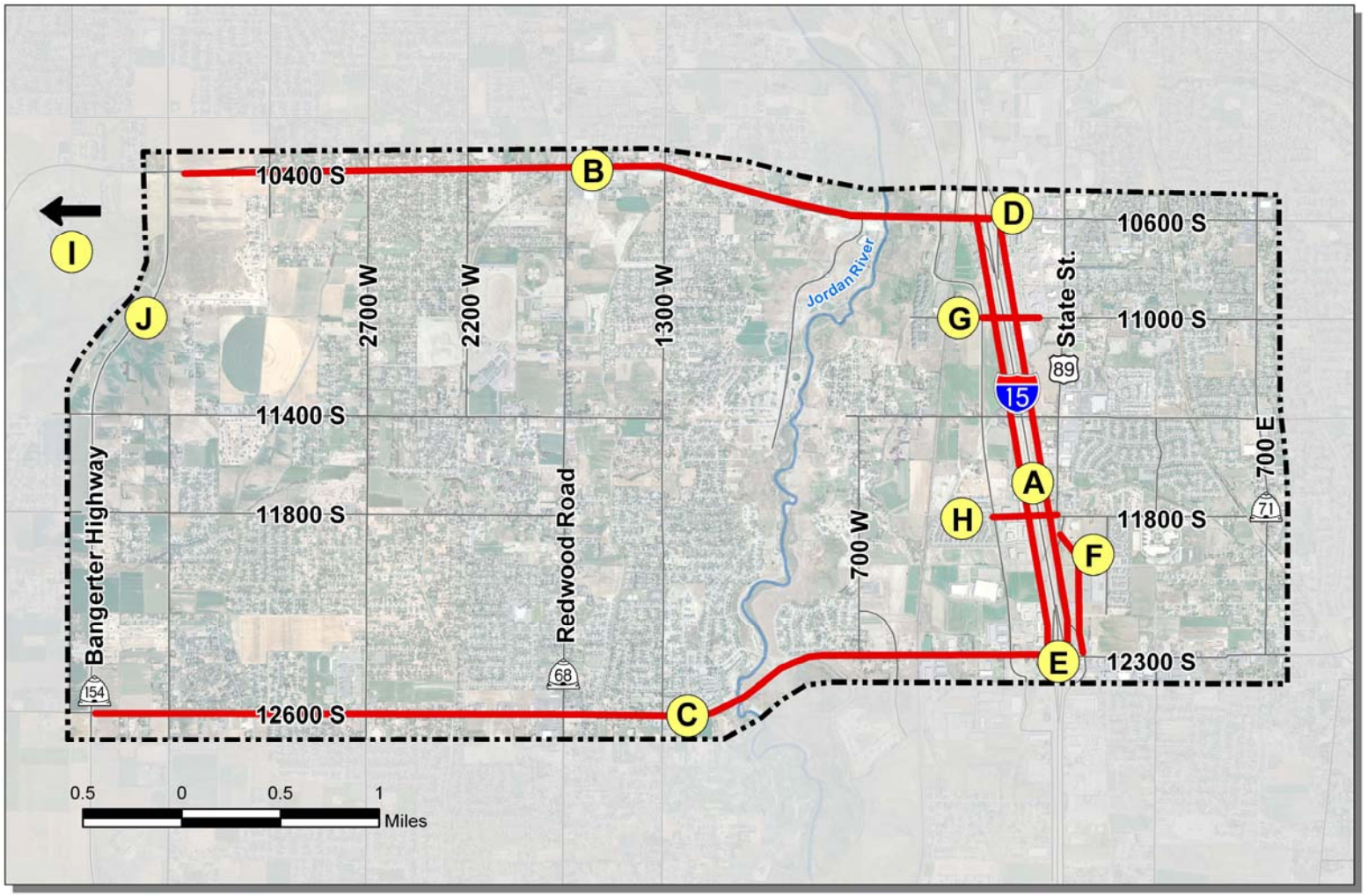
* Plus an additional center turn lane or median.

The changes shown in ~~**strike-through**~~ text were based on the results of the initial traffic analysis. This analysis showed that:

- By reconstructing the ramp on I-15 southbound to 10600 South and signalizing the right turn, the traffic weave problem at 10600 South and Jordan Gateway would be sufficiently addressed and realigning Jordan Gateway would not be necessary.

Summary of Alternatives

Table 2-1 summarizes the components of each alternative advanced forward to the Tier 2 screening analysis. As Alternative 8 does not contain any roadway improvements, it is not included in the table.



Note: Letters correspond to Alternative components listed above.

Figure 2-13. Alternative 9

Table 2-1.
Summary of Improvements by Alternative

Improvement	1	2	3A	3B	3C	4	5	6	7	9
Widen 10400 S to six lanes from Bangerter Hwy to just west of Redwood Rd	X	X	X	X	X					X
Widen 10600 S to six lanes from just west of Redwood Rd to Jordan Gateway	X	X	X	X	X		X	X	X	X
Widen 10600 South to six lanes from River Front Parkway to Jordan Gateway						X				
Widen 12300/12600 S to six lanes from Bangerter Hwy to Lone Peak Pkwy	X	X	X	X	X					X
Widen 11400 S from Bangerter Hwy to State Street with a new river crossing and intersection improvements at 11400 S and Bangerter Hwy	X					X		X	X	
Add two-lane I-15 underpass at 11000 S	X		X	X	X					X
Add two-lane I-15 overpass at 11800 S	X		X	X	X					X
Modifications to I-15 interchange at 10600 S (triple left turn lane southbound to eastbound)	X	X	X	X	X	X	X		X	
Widen State St to six lanes from 12300 S to 11400 S	X									
Widen Jordan Gateway/Lone Peak Pkwy to six lanes from 12300 S to 10600 S			X	X	X				X	
Add a new interchange with I-15 at 11400 S		X				X	X			
Intersection improvements on Jordan Gateway/Lone Peak Pkwy at 10600 S, 11400 S, and 12300 S						X	X			
Widen 11400 S/11800 S from Bangerter to State St with a new river crossing joining 11400 S to 11800 S and a new interchange at 11800 S and Bangerter							X			
Make Mountain View Corridor a ten-lane facility				X	X					X
Make Bangerter Highway a six-lane freeway facility				X						X
Add one-way frontage roads along I-15 from 12300 S to 10600 S with interchange modifications at 10600 S and 12300 S								X		X
Realign State Street between 12300 s and 11800 S								X		X

2.3 Tier 2 Screening Analysis

Twelve alternatives (No Build, 1, 2, 3A, 3B, 3C, 4, 5, 6, 7, 8, and 9) were analyzed to determine if they met the Tier 2 screening criteria. Detailed traffic modeling and analysis was performed for these 12 alternatives.

The Tier 2 screening criteria, based on the project purpose and need and the project goals identified through public and resource agency input, were:

1. The alternative must reduce congestion and improve mobility in the study area over the No Build Alternative (LOS D or better is desired).
2. The alternative must maintain or improve the mobility and function of the I-15 interchanges in the study area.
3. The alternative must provide the transportation infrastructure to support economic development in the study area.
4. The alternative should be consistent with local planning and zoning and avoid excessive relocations.
5. The alternative must not have excessively high project costs in comparison to the other alternatives considered. Alternatives with excessive costs were considered not practical or feasible from an economic standpoint.

Following is a discussion of the screening analysis.

2.3.1 Level of Service and Mobility Analysis

The decision-making process for this project is based on the FHWA guideline of using a 20-year planning horizon, or the most recent available planning model (in this case, the WFRC 2030 transportation planning model) as the time period for traffic analysis. Therefore, the alternatives were evaluated based on how well they address mobility issues in 2030.

Table 2-2 shows the forecasted p.m. peak hour (4 p.m. to 6 p.m.) traffic conditions at critical intersections and freeway interchange areas within the study area for the year 2030 by alternative. Intersections that will be at capacity (LOS E) or over capacity (LOS F) are shown in red. Similarly, Table 2-3 shows the predicted p.m. peak traffic conditions at freeway segments along I-15. (See Appendix A for more detail regarding the mobility analysis.)

As shown in the tables, under Alternative 2, mobility within the study area at critical intersections would be worse than under the No Build Alternative. Therefore, Alternative 2 was eliminated from further consideration as it did not meet the project purpose and need for improving mobility in the study area.

Alternatives 6 and 9 were eliminated from further consideration because both alternatives made the freeway interchange conditions worse than under the No Build Alternative. This is a result of the additional cross-streets merging at 10600 South or 12300 South and I-15. In addition, many I-15 segments would operate at a reduced capacity within the study area.

In terms of mobility, Alternative 8, the Transit Only alternative, is similar to the No Build Alternative in the year 2030. Because of the extensive transit improvements already included in the No Build Alternative, there would not be a substantial increase in mobility with the additional transit improvements provided by this alternative. The WFRC model already assumes that transit trips will increase over 300 percent in the project area between 2001 and 2030 (from approximately 1200 trips to 4800 trips per day). A reasonable estimate for Alternative 8 would be to assume an additional 30 percent increase.

Table 2-2.
2030 Critical Intersection Analyses – P.M. Peak Hour Level of Service

	Alternative											
Critical Intersection	**No Build**	**1**	**2**	**3A**	**3B**	**3C**	**4**	**5**	**6**	**7**	**8**	**9**
10600 S/Redwood Road	E	E	E	E	D	E	E	D	D	D	E	E
10600 S/1300 W	F	E	F	F	E	F	F	E	E	E	F	E
10600 S/Jordan Gateway	F	E	E	D	D	D	D	D	E	E	F	E
10600 S/Auto Mall Drive	C	D	E	D	D	D	D	D	D	D	C	D
10600 S/State Street	F	E	E	E	E	E	E	E	E	E	F	E
11400 or 11800 S/Redwood Rd	C	D	C	D	B	D	D	D	D	D	C	C
11400 or 11800 S/1300 W	E	D	E	B	C	B	C	D	C	C	E	C
11400 S/Jordan Gateway	C	D	D	E	D	E	D	D	C	D	C	D
11400 S/State Street	F	D	F	D	D	D	F	F	D	E	F	D
12300 S/Redwood Road	E	D	D	D	D	D	D	D	D	D	E	D
12300 S/1300 W	D	D	E	D	C	D	D	C	D	D	D	D
12300 S/Lone Peak Pkwy.	C	D	E	E	D	E	D	D	D	E	C	D
12300 S/State Street	D	D	E	D	D	D	D	D	C	D	D	C
Total Intersections At or Over Capacity	**7**	**4**	**10**	**5**	**2**	**5**	**4**	**3**	**3**	**5**	**7**	**4**
Interchange Area	**No Build**	**1**	**2**	**3A**	**3B**	**3C**	**4**	**5**	**6**	**7**	**8**	**9**
10600 S/I-15	E	D	D	D	D	D	D	D	F	D	E	F
10600 S/I-15 WB Weave	F	D	D	D	D	D	D	D	D	D	F	D
11400 S/I-15	N/A	N/A	D	N/A	N/A	N/A	D	D	D	N/A	N/A	C
12300 S/I-15	D	D	D	D	D	D	D	D	F	D	D	F
Total Interchange Areas At or Over Capacity	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**2**	**2**

Note – Red indicates the intersection/interchange area will be at or over capacity in 2030
Source: Wilson & Co., 2004
N/A = Not Applicable

Table 2-3.
2030 Interstate 15 Freeway Segments/Ramps– P.M. Peak Hour Level of Service

	Alternative											
South Bound I-15	**No Build**	**1**	**2**	**3a**	**3b**	**3c**	**4**	**5**	**6**	**7**	**8**	**9**
North of 10600 South	D	D	D	D	D	D	D	D	D	D	D	D
10600 South Off Ramp	E	E	D	E	E	E	D	D	E	E	E	E
10600 South On Ramp	B	C	D*	C	C	C	D*	D*	D	C	B	D
10600 South to 11400 South	D	E		E	D	E			E	E	D	E
11400 South On Ramp	N/A	N/A	B	N/A	N/A	N/A	B	B	N/A	N/A	N/A	N/A
11400 South to 12300 South	D	E	E	E	D	E	D	D	E	E	D	E
12300 South Off Ramp	D	E	D	E	D	E	D	D	E	E	D	E
12300 South On Ramp	B	C	C	C	C	C	C	C	C	C	B	C
South of 12300 South	D	E	D	E	D	E	D	D	E	E	D	D
North Bound I-15	**No Build**	**1**	**2**	**3a**	**3b**	**3c**	**4**	**5**	**6**	**7**	**8**	**9**
South of 12300 South	C	D	D	D	C	D	D	D	D	D	C	D
12300 South Off Ramp	D	D	C	D	D	D	C	C	D	D	D	D
12300 South On Ramp	C	C	C*	C	B	C	C*	C*	D	C	C	C
12300 South to 11400 South	D	D		D	D	D			E	D	D	D
11400 South to 10600 South	D	D	C*	D	D	D	D*	D*	E	D	D	D
10600 South Off Ramp	D	D		D	D	D			E	D	D	E
10600 South On Ramp	C	C	C	C	C	C	C	C	C	C	C	C
North of 10600 South	C	C	C	C	C	C	D	D	C	C	C	C

* Indicates freeway weave section
Note – Red indicates the freeway segment will be at or over capacity in 2030
Source: Wilson & Co., 2004
N/A = Not Applicable

In 2030, close to 240,000 vehicle trips or 375,000 person trips per day will begin or end in the project area. Assuming the increased transit service provided in Alternative 8 would result in a 30 percent increase in transit trips (1,500 person trips) and a 15 percent increase in pedestrian/cycle trips (3,500 person trips) over the 2030 Long Range Plan projections, this would equate to a vehicle reduction of 3,400 of the trips per day or 680 trips during the evening peak hour (assuming a 20 percent transit peak hour[1]). This is less than one and one-half percent of the total vehicle trips per day in or out of the project area and less than one percent of the total person trips.

Spreading this trip reduction out over the project area transit routes during the peak hour and considering that some of the transit trips will be accessed through park-and-ride facilities results in a minimal impact on peak hour mobility. Therefore, this alternative was also eliminated from further consideration.

2.3.2 Preliminary Economic Considerations

An initial evaluation of whether the preliminary alternatives would support economic development within the study area was conducted. Based on interviews with the planning and economic development offices from each city, the alternatives were ranked as either high, medium, or low in terms of supporting economic development. None of the alternatives were eliminated at this screening level for failing to provide the transportation infrastructure needed to support economic development within the study area.

[1] In the WFRC 2030 traffic model, Home-Based Work (HBW) transit trips make up 40 percent of all transit trips. It is reasonable to assume that the p.m. peak hour accounts for over half of these trips, or 25 percent. Because not all afternoon work trips are made in a single hour, a 20 percent assumption is a conservative (high) estimate of peak hour trips.

2.3.3 Relocations

Alternative 5 provided similar mobility improvements as Alternative 4. However, because the roadway alignment would go through an established residential neighborhood near 11800 South on the west side of the Jordan River, more than 140 home relocations would be required under both option 1 and option 2 (the eastern and western routes, respectively, on Figure 2-10). There was strong public opposition to this alternative from both the area residents and the Riverton City Council. The City Council passed a resolution stating they were opposed to this alternative and would not support it. This alternative was removed from further consideration due to the strong public opposition, the significant number of home relocations required, and the fact that it was inconsistent with local planning.

As Alternatives 3B, 3C, and 9 would widen the proposed Mountain View Corridor from six lanes to ten lanes, and Alternatives 3B and 9 would widen Bangerter Highway to a six-lane freeway facility, there would be excessive relocations associated with all three of these alternatives. The number of relocations due to the widening of Mountain View Corridor cannot be determined at this time because the exact location of the Mountain View Corridor has not yet been established. However, it is estimated that there would be over 500 residential and business relocations required to widen Bangerter Highway to a six-lane facility.

2.3.4 Cost Analysis

A cost estimate was completed for each of the preliminary alternatives. The costs for the projects listed under the No Build Alternative were not incorporated into any of the cost estimates, as it was assumed they would be funded as part of other projects. Table 2-4 summarizes the preliminary project costs by alternative. Details of the cost estimates are included as Appendix C. For alternatives that were advanced for detailed analysis, more refined

cost estimates were completed and these results are also presented in Appendix C.

As shown in Table 2-4, cost estimates for Alternative 3B and Alternative 9 are up to nine times higher than the cost estimates of the other Build Alternatives, because Alternatives 3B and 9 include constructing the Mountain View Corridor as a 10-lane freeway and Bangerter Highway as a 6-lane freeway. Alternative 3C is the same as Alternative 3A, plus widening Mountain View Corridor to a ten-lane facility. Costs for Alternative 3C are more than three times higher than Alternative 3A, yet as shown in Tables 2-2 and 2-3, Alternative 3C does not provide any added mobility improvements in the study area over Alternative 3A.

Table 2-4.
Preliminary Cost Estimate by Alternative

Alternative	Estimated Cost
No Build Alternative	$0
Alternative 1	$235,000,000
Alternative 2	$135,000,000
Alternative 3A	$165,000,000
Alternative 3B	$1,205,000,000
Alternative 3C	$515,000,000
Alternative 4	$145,000,000
Alternative 5	$200,000,000
Alternative 6	$190,000,000
Alternative 7	$155,000,000
Alternative 8	$80,000,000
Alternative 9	$1,240,000,000

2.3.5 Summary of the Tier 2 Screening Analysis

Based on the Tier 2 screening analysis, Alternatives 2, 3B, 3C, 5, 6, 8, and 9 were eliminated from further consideration. The Tier 2 screening results are discussed below. Alternatives that did not improve mobility over the No Build Alternative, did not maintain or improve I-15 function, or had excessive relocations, were eliminated as summarized in Table 2-5.

Alternatives 2 and 8 were eliminated from further consideration because they did not improve mobility in the study area over the No Build Alternative. Alternative 2 performed much worse than the No Build Alternative, reporting 10 intersections at level of service E or worse. Alternative 8 added more transit improvements to the study area but still performed about the same as the No Build Alternative.

Alternatives 6 and 9 were eliminated because the frontage road system improvements at the I-15/10600 South and I-15/12300 South interchanges actually made operations at these facilities operate worse than the No Build Alternative. The results were poor for improving mobility since these locations process more traffic than any other intersections in the study area. Alternative 9 was also eliminated due to excessive relocations, as discussed below.

Alternatives 3B, 3C, 5 and 9 were eliminated due to the excessive number of relocations necessary for improvements, as discussed in Section 2.3.3 above. Alternative 5 would go through an established residential neighborhood resulting in over 140 required relocations. There was strong local opposition to this alternative. As a result of excessive relocations and construction required for the widening of the proposed Mountain View Corridor (Alternatives 3B, 3C, and 9) and the widening of Bangerter Highway (Alternatives 3B and 9), these three alternatives also reported costs that were a factor of three to seven times more

expensive than the average cost of the other Build Alternatives as shown on Table 2-4.

Table 2-5.
Tier 2 Screening Summary

Alternative	Does not improve mobility over No Build	Does not maintain or improve I-15 function	Results in excessive relocations
1			
2	X		
3A			
3B			X
3C			X
4			
5			X
6		X	
7			
8	X		
9		X	X

Shading indicates alternative was eliminated from further consideration

2.4 Alternatives Advanced for Detailed Analysis

The alternatives that passed the Tier 2 screening were advanced for further detailed analysis. These included four Build Alternatives: Alternative 1, Alternative 3A, Alternative 4, and Alternative 7, as well as the No Build Alternative, which was advanced to provide a baseline, as required by NEPA. Further descriptions of the alternatives are presented below. The analysis of the social, environmental, and economic impacts of each of these alternatives is included in Section 4 of this FEIS.

2.4.1 Typical Cross Section for All Alternatives

Based on UDOT guidelines and the goals identified to meet project purpose and need, it was determined that a 64-foot cross section for a two-lane roadway, a 98-foot cross section for a four-lane roadway, and a 130-foot cross section for a six-lane roadway would adequately meet the project purpose and need. These cross sections are shown in Figure 2-14, Figure 2-15, and Figure 2-16, respectively.

If a design element of a proposed roadway does not meet the UDOT design criteria as adopted from AASHTO guidelines (AASHTO 2001), then a design exception letter is required. A design exception may be required for some locations along the proposed six-lane roadways due to roadway design criteria. Both 10400/10600 South and 12300/12600 South were originally designed for a four-lane typical section. In some locations, the proposed six-lane typical section would be constructed by widening the four-lane roadway, hence matching the original cross slope. The original cross slope may not meet the six-lane roadway design criteria.

The two-lane facilities would apply at the under- and overpasses of I-15 with 11000 South and 11800 South. The four-lane facility would apply to 11400 South. The six-lane facilities would apply to 10400/10600 South, 12300/12600 South, State Street, and Jordan Gateway/Lone Peak Parkway.

The typical cross section is based on UDOT design criteria as adopted from AASHTO guidelines (AASHTO 2001). Based on these guidelines, the 64-foot, 98-foot, and 130-foot cross sections were selected for the following reasons:

- To accommodate left-turn movements, the median width was set at 14 feet for the four-lane and six-lane facilities. This includes an 11-foot turn lane with a 3-foot median to separate opposing traffic. Medians may be raised or striped depending on the location. See alternative figures at the end of Section 2 for more detail on median placement along 11400 South. Median placement along 10400/10600 South and 12300/12600 South will generally be the same as currently exists. A median was not included on the two-lane cross section for the I-15 overpass and underpass, as there are no turning movements.
- For the six-lane facilities, a 12-foot vehicle lane width was selected. AASHTO states that "12-foot lane widths are most desirable and should be used, where practical, on higher speed, free-flowing, principle arterials" (AASHTO 2001, page 476). For the four-lane facilities, an 11-foot lane width was selected. AASHTO states that "lane widths of 11 feet are used quite extensively for urban arterial street designs" (AASHTO 2001, pages 476-477). Because 11400 South would be considered a minor urban arterial, the narrowing lane width was considered appropriate. For the two-lane cross section, 12-foot lane widths were selected because of the high volume of truck traffic expected in this commercial area.
- The project goals include meeting the needs of bicyclists, pedestrians, and bus transit. To accommodate these transportation modes and to accommodate disabled vehicles, a 10-foot-wide shoulder, consisting of a 4-foot bike lane and 6-foot shoulder, was selected for the six-lane facilities. AASHTO recommends that "heavily traveled high speed highways…should have usable shoulders at least 10 feet wide and preferably 12 feet wide" (AASHTO 2001, page 318). For the four-lane and two-lane facilities, an 8-foot shoulder, consisting of a 4-foot bike lane and 4-foot shoulder is considered adequate. AASHTO states that "a minimum shoulder width of 2 feet should be considered for the lowest type highway, and a 6- to 8-foot shoulder width is preferable" (AASHTO 2001, page 318). The 4-foot bicycle lane meets the AASHTO recommendation that paved shoulders should be at least 4 feet wide to accommodate bicycle travel (AASHTO 1999, page 16).
- A 2.5-foot curb was selected for this project. This is a required element for drainage and provides the minimum level of roadside protection as required by UDOT standards.
- A 4.5-foot park strip with a 5-foot-wide sidewalk was selected based on draft AASHTO guidelines for pedestrian facilities *(*AASHTO 2001a). The park strip would provide a buffer area for pedestrians.

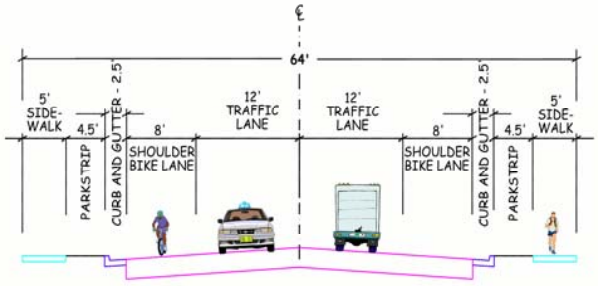


Figure 2-14. Typical 2-Lane Cross Section;
(Design Speed 35 mph – posted speed may be lower)

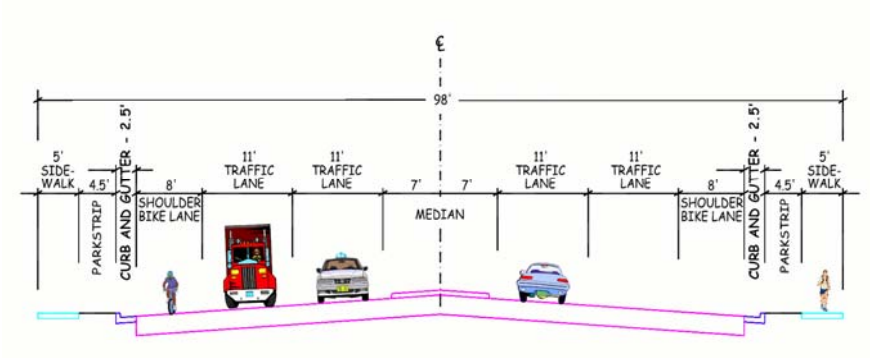


Figure 2-15. Typical 4-Lane Cross Section;
(Design Speed 45 mph – posted speed may be lower)

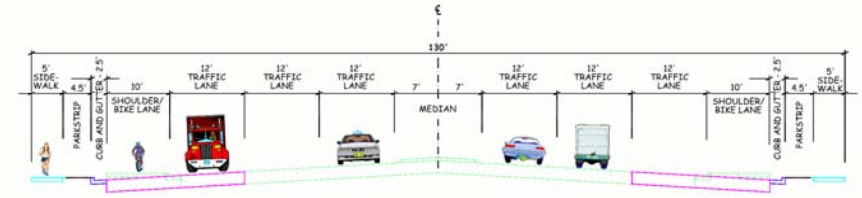


Figure 2-16. Typical 6-Lane Cross Section
(Design Speed 50 mph – posted speed may be lower)

2.4.2 Modifications to Typical Cross Section

The typical cross sections discussed above were modified in several locations under all applicable alternatives. The locations of the cross section modifications and the reasons for the modifications are discussed below.

11400 South Between State Street and Jordan Gateway/ Lone Peak Parkway

The cross section along 11400 South in this area was increased to 106 feet to accommodate the higher volumes of traffic that are projected for this location. Similar to the six-lane typical cross section, the lane widths would be 12 feet, and the shoulder width would be 10 feet. All other roadway components would remain the same as discussed above.

11400 South near 700 West

The cross section along 11400 South in this area was narrowed for about 700 feet to accommodate the frontage road system and the realignment of 700 West. The median was narrowed from 14 feet to 8 feet. Due to the short distance of this cross section reduction, no safety concerns are anticipated. The reduced median would only occur where there would be no turning movements.

11400 South at Major or Signalized Intersections

The shoulder width at major and/or signalized intersections along 11400 South was increased from 8 feet to 12 feet to accommodate passenger cars making U-turns.

10600 South at the Jordan River

The cross section along 10600 South was modified at the crossing of the Jordan River to reduce impacts to wetlands. The modification included narrowing the shoulder from 10 feet to 4 feet, and reducing the median from 14 feet to 12 feet. Due to the short distance of this cross section reduction, no safety concerns are anticipated. The minimum 4-foot bicycle lane was achieved as recommended by AASHTO, and the reduced median would only occur where there would be no turning movements.

In addition, in accordance with a previous commitment made for the recent 10600 South EA, the sidewalk along the north side of 10600 South from just west of the Jordan River to 1300 West would be 10 feet wide, rather than 5 feet.

10600 South near 1300 West

The cross section along 10600 South was narrowed for about 350 feet in the vicinity of the pedestrian overpass at approximately

1300 West. In this area, the shoulder on the north side of the roadway would be reduced to 4 feet and the sidewalk would be reconfigured in order to maintain the pedestrian overcrossing.

12300 South from west of the Jordan River to 800 West

The cross section along 12300 South was also modified at the crossing of the Jordan River to avoid a wetland mitigation site. The modification included narrowing the shoulder from 10 feet to 4 feet, and reducing the median from 14 feet to 8 feet. Due to the short distance of this cross section reduction, no safety concerns are anticipated. The minimum 4-foot bicycle lane would be available and the reduced median would only occur where there would be no turning movements. The park strip was eliminated and the sidewalk was increased to 6 feet.

Modifications at various locations in the Study Area

In an effort to avoid or minimize impacts to historic properties in the study area, variations to the typical cross section were made at several locations throughout the study area. These variations include reducing or eliminating the park strip (where the park strip is eliminated, the sidewalk is widened from 5 feet to 6 feet per AASHTO guidelines for pedestrian facilities, AASHTO 2001a), and in some locations also reducing the shoulder. In no case is the shoulder reduced to less than 4 feet. Due to the short length of the reduced cross-section, no safety concerns are anticipated. See Section 5, *Final Section 4(f) Evaluation*, for more detail on the avoidance and minimization measures taken. The reduced cross sections occur at the following property locations:

- *1476 West 10400 South (Alternatives 1, 3A, and 7)*
- *3113 West 11400 South (Alternatives 1, 4, and 7)*
- *11323 South 2700 West (Alternatives 1, 4, and 7)*
- *11395 South Redwood Road (Alternative 1, 4, and 7)*
- *11386 South 1300 West (Alternatives 1, 4, and 7)*
- *1327 West 11400 South (Alternatives 1, 4, and 7)*
- *11450 South 800 West (Alternatives 1, 4, and 7)*
- *2779 West 12600 South (Alternatives 1 and 3A)*
- *2630 West 12600 South (Alternatives 1 and 3A)*
- *1396 West 12600 South (Alternatives 1 and 3A)*
- *692 West 12300 South (Alternatives 1 and 3A)*
- *681 West 12300 South (Alternatives 1 and 3A)*
- *390 West 12300 South (Alternatives 1 and 3A)*
- *11550 South 260 West (Alternatives 3A and 7)*
- *11687 South State Street (Alternative 1)*
- *11613 South State Street (Alternative 1)*

2.4.3 Components of Alternatives Advanced

The No Build Alternative was previously described in Section 2.2.2. It includes all the projects identified in the WFRC 2030 Long Range Plan, except that there would be no interchange at 11400 South and no improvements to 11400 South.

The proposed corridor improvements associated with the Build Alternatives, as previously summarized in Table 2-1, are shown in the figures at the end of Section 2. The figures show the proposed ROW lines and drainage system elements along each corridor, and required home and business relocations. Historic properties that would be impacted are also identified. Many of the improvements are included in several alternatives as indicated on the figures and in the table.

The figures represent the most extensive median placement that may occur. During final design, additional median openings may be included. However, as additional median openings may affect safety and traffic operations, the UDOT guidelines for mid-block openings will be followed. These guidelines establish minimum

lengths between mid-block openings for major and minor arterials in current and projected urban areas (UDOT, 2005).

The type of median (mountable or curb) and median aesthetics would be determined during final design in concert with the affected cities. The cities could provide betterment funds for decorative elements in the medians.

Since the DEIS, changes were made to two Alternative 3A figures to show that impacts to the Fairbourn Historic District would include parcel strip takes, not relocations. Changes were also made to Alternative 1, 4, and 7 figures as a result of public and agency comments received on the DEIS. Changes along 11400 South include additional median openings to accommodate two churches (at approximately 2000 West and 2400 West), correcting proposed median lengths at approximately 2600 West and 3000 West, and showing the location of the pedestrian bridge planned to be constructed adjacent to the roadway bridge. Another change shows how 165 West would be made into a cul-de-sac if the interchange at 11400 South and I-15 were constructed under Alternative 4. Also, the existing detention basin along 10600 South at approximately 700 West has been added to Figure 2-19a.

Three alternatives (Alternatives 1, 4, and 7) include a river crossing and construction of a new 11400 South roadway between 740 West and 1300 West. Between River Front Parkway and 1300 West, due to the existing topography, large cut and fill walls would be required. If one of these alternatives is selected, additional geotechnical evaluation will be conducted during final roadway design to determine if taller cut walls could be constructed, thereby reducing the height of the required fill walls in the area. Specifically, the evaluation will determine if construction of a taller cut wall (increasing the cut walls from a maximum of 25 feet to a maximum of 32 feet) is viable near Marco Polo Drive. If so, one additional relocation may be required (a residence on Annika Circle); however, this would reduce the required height of the fill walls between Marco Polo Drive and Chapel View Drive from a maximum of 12 feet, as currently proposed to a maximum of 5 feet.

2.5 Comparison of Alternatives and Identification of Preferred Alternative

Figure 2-1 details the evaluation process used to identify the Preferred Alternative. Identification of the Preferred Alternative was based on a comparison of all the alternatives advanced for detailed study in terms of mobility improvements, and environmental, social, and economic impacts. In addition, the project team considered public and resource agency input and city council recommendations or resolutions regarding the project.

Table 2-6 summarizes impacts from each of the alternatives advanced. The highlighted boxes indicate the best Build Alternative for the listed criteria. See Sections 4 and 5 for more detail on the impacts analysis.

Although the No Build Alternative had the least environmental impacts, it did not meet the project purpose and need for improving mobility and providing the transportation infrastructure to support economic development within the study area through the year 2030. Therefore, it was not selected as the Preferred Alternative. Based on the comparative analysis of the Build Alternatives, presented in Sections 4 and 5 and summarized below, Alternative 4 is selected as the Preferred Alternative in this FEIS. After public comments on the FEIS have been fully evaluated, the final alternative selection will be made and documented in the Record of Decision (ROD) to be issued by FHWA.

Table 2-6.
Impact Summary Table*

Alternative	No Build	Alt 1	Alt 3A	Alt 4	Alt 7
Mobility Improvements (Year 2030 p.m. peak conditions, 5 to 6 p.m.)					
Critical Intersections at or over capacity (#)	7	4	5	4	5
I-15 ramps/segments at or over capacity	1	5	5	0	5
Interchange areas at or over capacity	2	0	0	0	0
Travel time reduction over No Build (overall study area)	N/A	28.6%	28.2%	30.7%	21.4%
Travel time reduction over No Build (to the Interstate)	N/A	9.5%	16.7%	22.2%	5.6%
Economic Development Benefits					
Estimated additional retail sq ft over No Build	N/A	856,000	0	1,388,000	825,000
Estimated additional sales tax revenue over No Build	N/A	$2,996,000	$0	$4,683,000	$2,887,500
Right-of-Way Acquisitions and Relocations (includes Historic properties)					
Home relocations (#)	0	60	34	26	31
Business relocations (#)	0	16	16	0	2
Wetlands					
Wetlands impacts - jurisdictional acres (total acres)	0	0.28 (0.68)	0.01 (0.37)	0.26 (0.57)	0.26 (0.64)
Noise Impacts					
Receptor dwellings at or over the Noise Abatement Criteria**	148	258	181	255	253
Receptor dwellings that could achieve 5dBA or greater mitigation	0	72	27	29	39
Section 4(f) Property Impacts					
Section 4(f) historic resource impacts – parcel take (#)	0	6	3	3	3
Section 4(f) historic resource impacts – strip take (#)	0	26	14	15	20
Section 4(f) recreation/wildlife resource impacts (#)	0	5	4	2	2
Construction Costs					
Preliminary cost estimate (million $)	0	208	167	122	150

* Highlighted boxes indicate best build option for criteria
** Includes substantial noise increases of 10 dBA or more

Mobility Improvements

In 2030, all of the Build Alternatives are projected to improve mobility at critical intersections and interchanges within the study area compared to the No Build Alternative. However, as shown in Table 2-5, only Alternative 4 (which includes an interchange at 11400 South) is projected to improve mobility on I-15 over the No Build Alternative. The other Build Alternatives would make mobility on I-15 worse than the No Build Alternative. This decreased mobility is because Alternatives 1, 3A, and 7 (without an interchange) all improve capacity on the east-west arterials and allow more traffic to reach I-15, yet they do not increase the opportunity for traffic to get onto or off of I-15 within the study area. Without a new interchange, the additional freeway traffic would need to continue traveling along I-15 to one of the existing interchanges, thereby increasing congestion on the freeway between those interchanges. Alternative 4 spreads out the ability to enter and exit I-15. In addition, the new interchange provides the southbound on-ramp at 10600 South with an auxiliary lane between 10600 South and 11400 South to reduce the on- and off-ramp conflicts in this area.

As discussed in Sections 2.2 and 2.3, other alternatives that included a new freeway interchange were eliminated either because they did not meet AASHTO design standards (Tier 1 screening), or because they did not meet project purpose and need or had excessive relocations (Tier 2 screening).

An analysis of year 2030 travel times from seven origin and destination points across the project study area and four origin points to the interstate was performed for this FEIS (see Appendix A). The results are summarized in Table 2-5. Based on the analysis, Alternatives 1, 3A, 4, and 7 would result in a 29 percent reduction, 28 percent reduction, 31 percent reduction, and 21 percent reduction, respectively, in travel times within the study area over the No Build Alternative. For travel time to the interstate, Alternatives 1, 3A, 4, and 7 would result in 9 percent, 17 percent, 22 percent, and 5 percent reductions, respectively, over the No Build Alternative. Alternative 4 would result in the greatest reduction in travels times throughout the study area.

By providing a river crossing and new grade-separated crossing of the railroad on 11400 South, Alternatives 1, 4, and 7 would improve emergency response times, in particular to the area of South Jordan located on the east side of the Jordan River. Alternative 3A would not significantly improve emergency response times to this neighborhood.

Economic Considerations

Alternatives 1, 4, and 7 would all contribute to new neighborhood-scale retail development opportunities in the vicinity of 11400 South and Redwood Road. Due to the new freeway interchange, Alternative 4 would also contribute to regional-scale development in the vicinity of 11400 South and I-15.Table 2-5 shows the additional square feet of retail space and associated sales tax revenue for each alternative. Alternative 3A would not add any additional commercial development to the study area. This is because the roadway improvements for Alternative 3A occur along corridors that are already developed and no new accesses would be generated. However, Alternative 3A was retained as it improves mobility within the study area over the No Build Alternative, and it maintains access to existing commercial development.

Within the study area, most of the existing businesses that would be affected by a Build Alternative lie along 10400/10600 South or 12300/12600 South in either South Jordan or Riverton. Therefore, Alternatives 1 and 3A, which would disrupt businesses along the entire length of these two corridors, would have the greatest construction disruption impacts to businesses, and South Jordan

and Riverton would likely experience an associated loss of sales tax revenues.

Right-of-Way Acquisitions and Relocations

The residential and business relocations associated with each alternative are presented in Table 2-6 on page 2-39. Due to the widening of highly developed areas along 10400/10600 South and 12300/12600 South, Alternatives 1 and 3A have the greatest number of relocations required. Alternative 4 has the least number of home and business relocations. This is due in part to the 106-foot corridor that the City of South Jordan has preserved for a roadway ROW between River Front Parkway and Midas Creek along 11400 South. In addition, for the past several years, South Jordan has required new development along 11400 South to be set back 53 feet from the roadway centerline, resulting in a 106-foot roadway ROW existing at those locations.

Wetlands

None of the Build Alternatives would impact more than a half acre of jurisdictional wetlands or more than one acre of total wetlands. In addition, all wetland impacts under any of the Build Alternatives could be easily and fully mitigated using a wetland mitigation bank or alternative means. Accordingly, the small differences among wetland impacts were determined to be an insignificant factor for purposes of comparing among the alternatives. The Army Corps of Engineers has indicated that due to the minimal amount of jurisdictional wetlands impacted by any of the Build Alternatives the project would be permitted under a Nationwide Section 404 Permit, meaning that no project-specific Section 404(b)(1) analysis is required.

Section 4(f) Properties

Section 4(f) of the of the U.S. Department of Transportation Act of 1966 (49 United States Code 303) requires the FHWA to consider all feasible and prudent alternatives to avoid the use of public park and recreation lands, wildlife and waterfowl refuges, and historic sites for transportation projects. A Section 4(f) "use" occurs when:

- Land from a Section 4(f) property is acquired for a transportation project, referred to as a "direct taking;" or
- The proximity impacts of the transportation project on the Section 4(f) property, without acquisition of land, are so great that the purposes for which the Section 4(f) site exists are substantially impaired. This circumstance is known as "constructive use."

See Section 5 for the complete Section 4(f) evaluation prepared for this FEIS. Based on this evaluation, Alternative 4 was determined to have the least harm to Section 4(f) resources. All the Section 4(f) uses are direct takes. There are no constructive uses of Section 4(f) properties associated with the Build Alternatives.

City Council and County Council Support

The city councils for each of the project area cities (Draper, Riverton, Sandy, and South Jordan) and the Salt Lake County Council have all passed resolutions identifying which alternatives they support. At the time these resolutions were passed, Alternative 4 still included the widening of 10600 South from Jordan Gateway to just west of Redwood Road, rather than to just west of River Front Parkway as is currently depicted. The cities specifically identified the 11400 South freeway interchange and/or the 11400 South corridor improvements as necessary elements of their Transportation Plans. Copies of these resolutions are included in Appendix D.

The resolution from Draper City Council designated Alternative 4 as its Preferred Alternative. They stated they saw Alternative 4 as an integrated solution, but its support is contingent on UDOT

securing adequate funding to concurrently complete, at a minimum, the alternative's components from State Street to Redwood Road, including the interchange improvements and the Jordan River crossing.

The Riverton City Council's resolution did not designate an alternative by name; rather it directed the City staff to write a letter expressing support for a river crossing at 11400 South, continuing west on the current ROW. The letter prepared by the City staff and signed by the Riverton Mayor stated the City Council supports the 11400 South Project as a needed element in the long range transportation plan for the Southwest Valley. The WFRC Long Range Plan identifies the widening of 11400 South to four lanes from I-15 to Bangerter Highway, with an interchange at I-15 and 11400 South. These are the components of Alternative 4.

Sandy City Council requested UDOT approval of Alternative 4, which they indicated constituted the safest and most efficient traffic design. Letters from the Sandy City Community Development Department and the Mayor's Office recommended Alternative 4 because they concluded that an interchange at 11400 South/I-15 and the 11400 South connection across the Jordan River provide the best relief in improving mobility in all directions. They also supported Alternative 4 because it provides the best results for assisting the City in the area of economic development by improving access to developable properties in their city; it has the least amount of ROW impacts; and it is relatively low-cost as compared to the other alternatives. The Sandy City General Plan, adopted in 1979, identified the need for better east-west mobility along 11400 South, as well as a need for an interchange at 11400 South and I-15. Updates to the General Plans, including the City Master Transportation Plan and the Downtown Civic Center Plan, have continued to call for improved mobility on 11400 South and an interchange at 11400 South and I-15.

The South Jordan City Council resolution designated Alternative 4 as the Preferred Alternative with one exception. They requested that rather than widening 10600 South ROW to accommodate two additional travel lanes, that the street be re-striped to provide for additional travel and turn lanes. The City Council indicated they supported Alternative 4 because the 11400 South roadway design is consistent with the Transportation Element of the South Jordan City General Plan, 11400 South is one of only two potential major arteries within the City that can provide significant east-west access through the City and to I-15, and the City and neighboring communities to the south have vast areas of vacant land planned for residential development that will require east-west access. In addition, they indicated Alternative 4 will result in the most efficient travel times; fewest failing intersections and failing I-15 interchanges; greatest mobility in the study area; the fewest dwelling and business relocations; and is the most economical of the alternatives. The City Council stated that failure to construct 11400 South according to Alternative 4, with their exception noted, will result in delays, gridlock and air pollution on existing streets, waste of resources, unacceptable emergency vehicle response times, and reduced overall convenience and quality of life in the City.

The Salt Lake County Council passed a resolution endorsing and evidencing its support of Alternative 4 for this project. The reasons they indicated include: Alternative 4 is significantly less expensive than other alternatives; it has the greatest mobility improvements in area traffic; based on input from study areas cities, it provides the greatest level of support for economic development activities; it has the lowest number of ROW acquisitions and relocations; it has the second lowest impact on wetlands; it has the lowest impact to designated historic properties and recreational resources; and it has overwhelming public support.

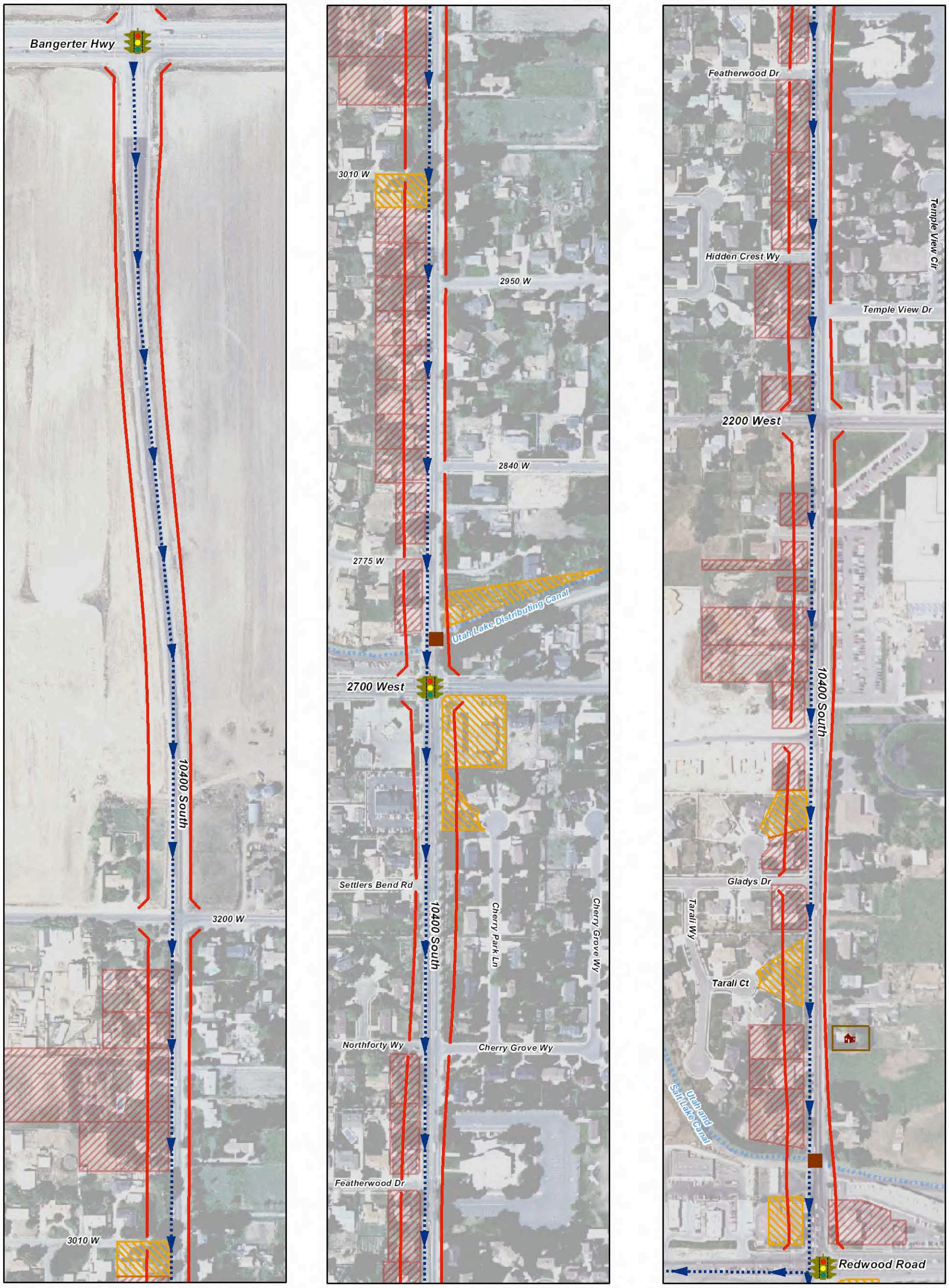
Costs

Detailed cost estimates were made for the alternatives that were advanced. These cost estimates are presented in Table 2-6 on page 2-39. As shown in the table, Alternative 4 is the least costly of the Build Alternatives. This is due to the lower number of commercial and residential relocations and the fewer miles of roadway improvements. Alternative 1 is the most costly due to it having the greatest number of commercial and residential relocations, and the greatest miles of roadway improvements proposed. Details of the costs estimates are provided in Appendix C.

Panel 1

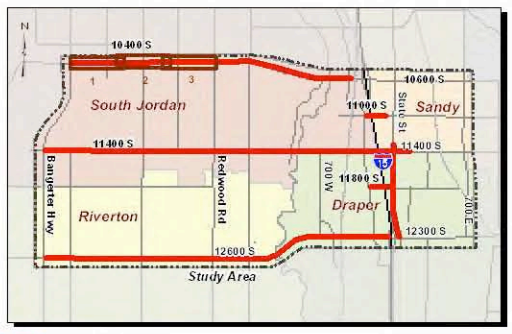
Panel 2

Panel 3



Alternative Right-of-Way Line
Raised Median
Proposed Retaining Wall
Relocation
Relocation from Other Project
Historic Relocation
Historic Strip Take
Historic Property
Major Signalized Intersection
Existing Detention Pond
Proposed Detention Pond
Existing Storm Drain Pipe
Proposed Storm Drain Pipe
Existing Stream/Canal
Outfall Relocation
Historic Canal

300 0 300 600 Feet



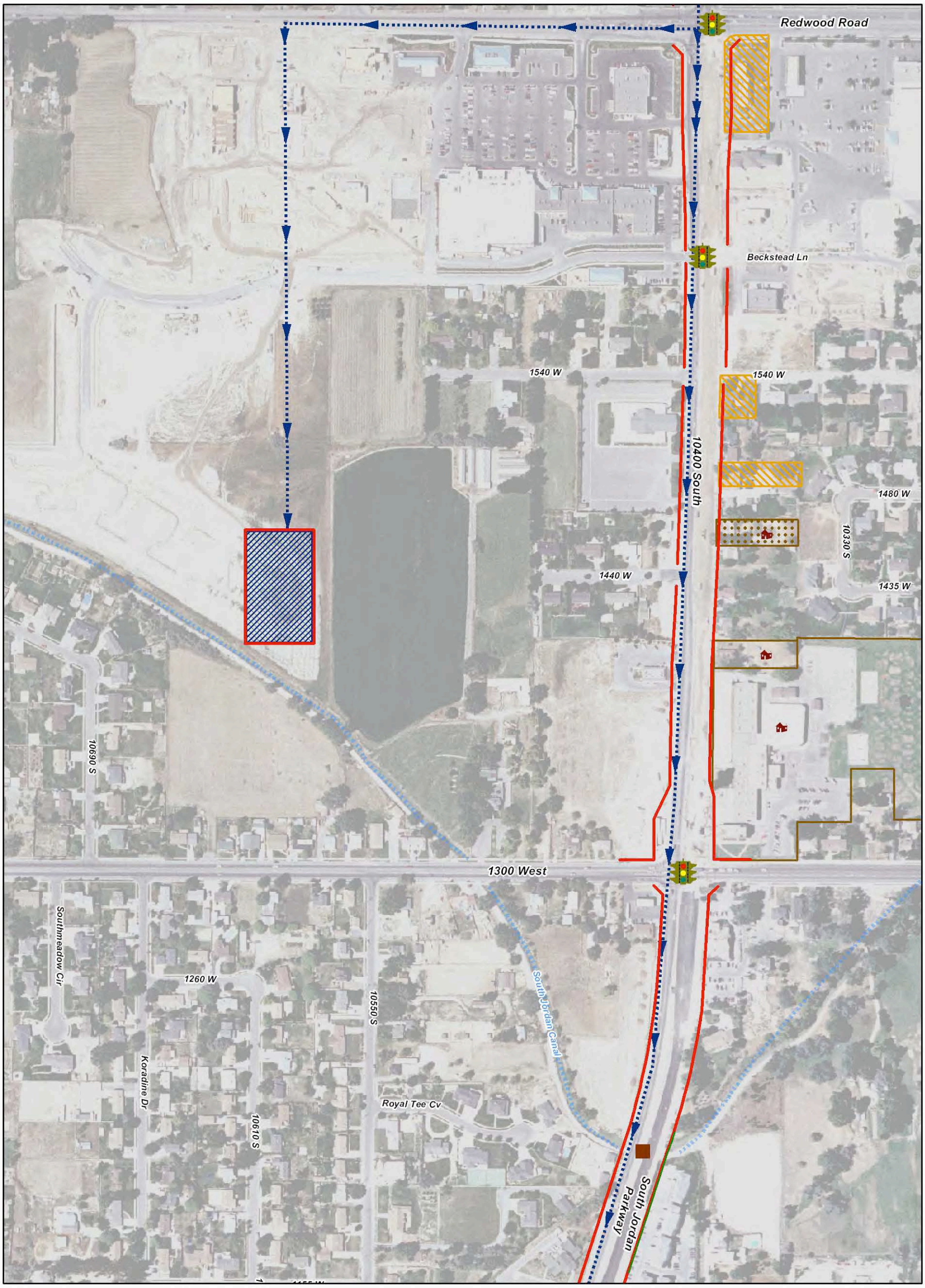
Panel Extent
Alternative 1

2005

Figure 2-17a.

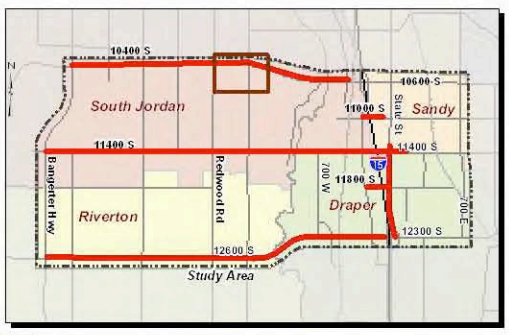
Alternative 1 Details
10400 South: Bangerter Highway to Redwood Road

11400 SOUTH
Environmental Impact Statement



Alternative Right-of-Way Line
Raised Median
Proposed Retaining Wall
Relocation
Relocation from Other Project
Historic Relocation
Historic Strip Take
Historic Property
Major Signalized Intersection
Existing Detention Pond
Proposed Detention Pond
Existing Storm Drain Pipe
Proposed Storm Drain Pipe
Existing Stream/Canal
Outfall Relocation
Historic Canal

300 0 300 600 Feet



Panel Extent
Alternative 1

Figure 2-17b.

Alternative 1 Details
10400 South: Redwood Road to South Jordan Canal

11400 SOUTH
Environmental Impact Statement

2005

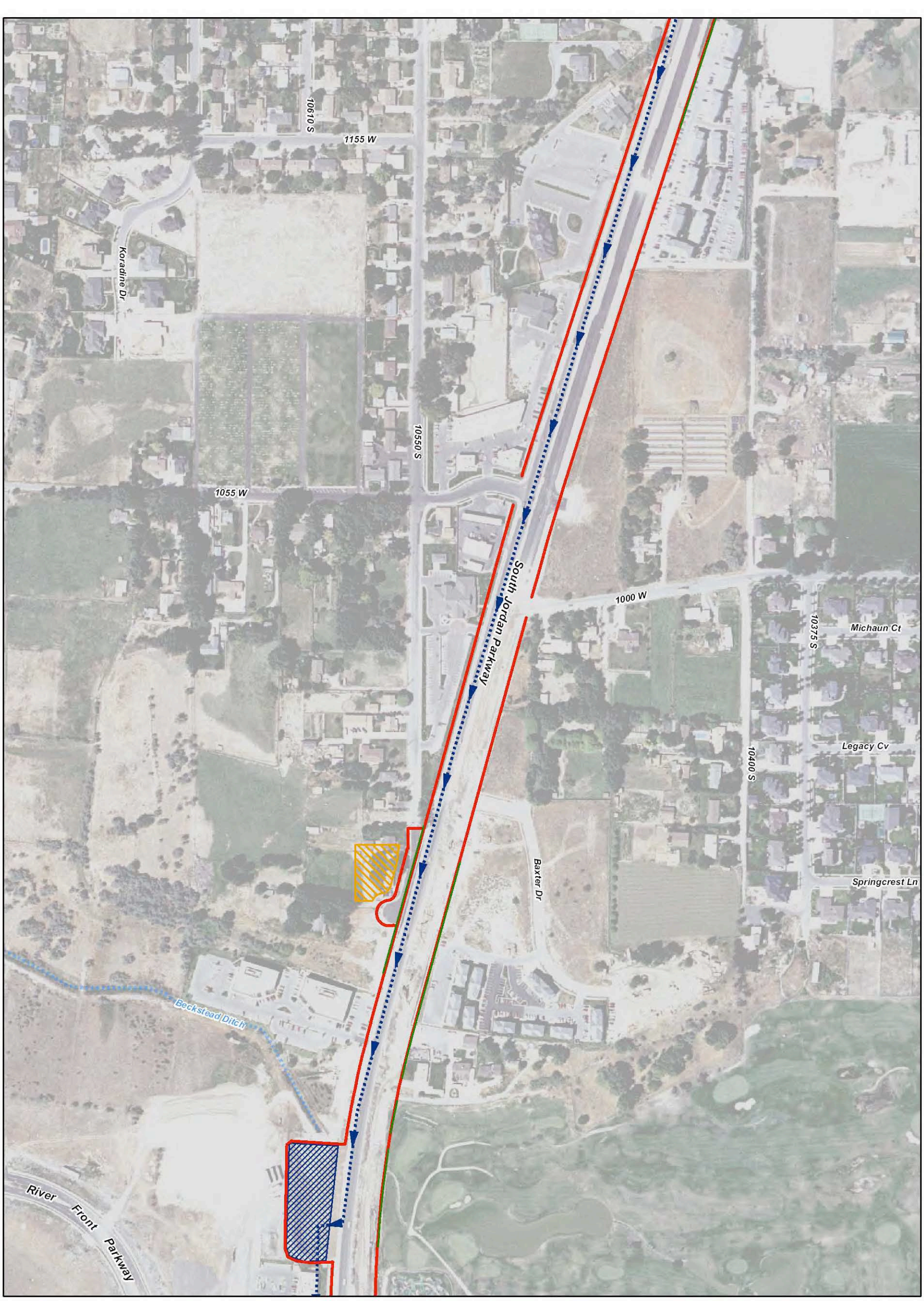


Figure 2-17c.

Alternative 1 Details
10400 South: South Jordan Canal to River Front Parkway

11400 SOUTH
Environmental Impact Statement

2005

River Front Parkway

Jordan River

Bridge

10600 South

Galena Canal

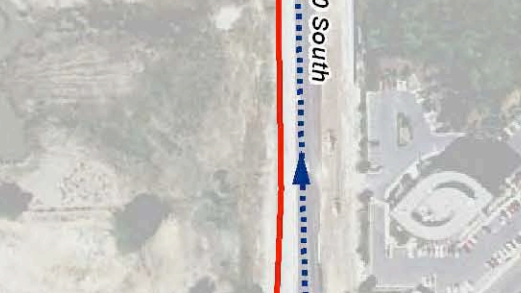
Jordan Gateway

Union Pacific RR

290 W

Alternative Right-of-Way Line
Raised Median
Proposed Retaining Wall
Relocation
Relocation from Other Project
Historic Relocation
Historic Strip Take
Historic Property
Major Signalized Intersection
Existing Detention Pond
Proposed Detention Pond
Existing Storm Drain Pipe
Proposed Storm Drain Pipe
Existing Stream/Canal
Outfall Relocation
Historic Canal

300 0 300 600 Feet



2005

Figure 2-17d.

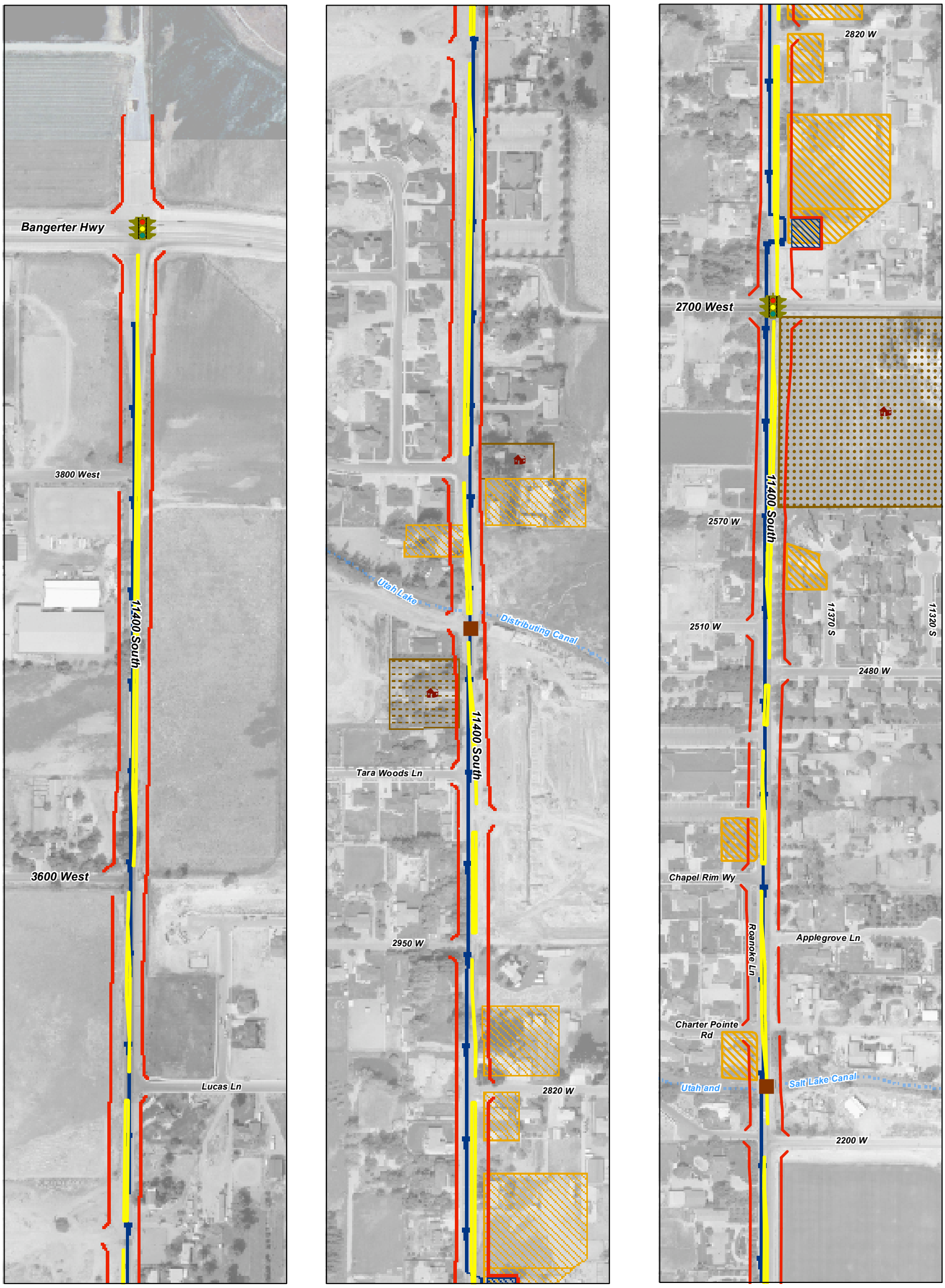
Alternative 1 Details
10600 South: River Front Parkway to Jordan Gateway

11400 SOUTH
Environmental Impact Statement

Panel 1

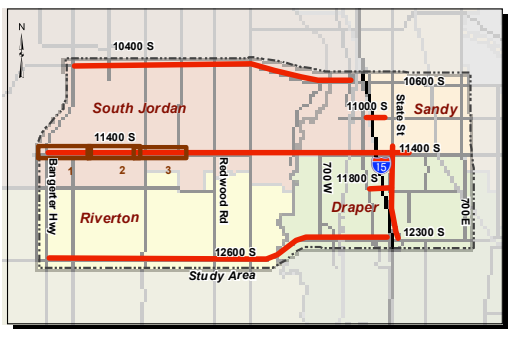
Panel 2

Panel 3



Alternative Right-of-Way Line
Raised Median
Proposed Retaining Wall
Relocation
Relocation from Other Project
Historic Relocation
Historic Strip Take
Historic Property
Major Signalized Intersection
Existing Detention Pond
Proposed Detention Pond
Existing Storm Drain Pipe
Proposed Storm Drain Pipe
Existing Stream/Canal
Outfall Relocation
Historic Canal

300 0 300 600 Feet



Panel Extent
Alternative 1

2005

Figure 2-17e.

Alternative 1 Details
11400 South: Bangerter Highway to 2200 West

11400 SOUTH
Environmental Impact Statement

11400 SOUTH
Environmental Impact Statement

Panel 1

Panel 2

Detail Area

Lampton View Dr
Beckstead Ditch
Chapel Ridge Dr
Chapel View Cir
Louise Meadow Dr
Chapel View Dr
Rambouillet Dr
1020 W
River Front Parkway
Future Trail Connection
Pedestrian Bridge
Roadway Bridge
Jordan River
Draper
South Jordan
Galena Canal
Trent Dr

Detail Area
Trent Dr
South Jordan
Draper
700 West
675 W
11400 S
Brooke N
Lance Ln
Willow Creek
Bridge (Proposed Grade Separated)
Union Pacific Railroad (historic)
300 W
Fairbourn Historic District

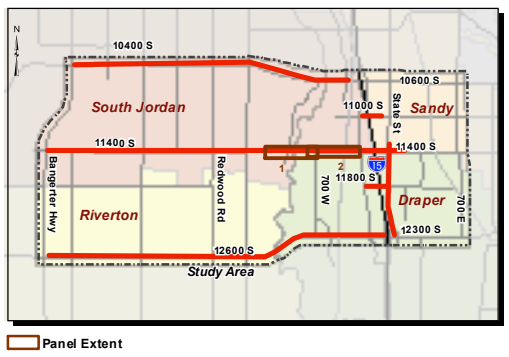
Trent Dr
700 West
675 W
11400 South
Brooke N
Lance Ln
Willow Creek
South Jordan
Draper

200 0 200 400 Feet

Building Outline
Curb and Gutter

Alternative Right-of-Way Line
Raised Median
Proposed Retaining Wall
Relocation
Relocation from Other Project
Historic Relocation
Historic Strip Take
Historic Property
Major Signalized Intersection
Existing Detention Pond
Proposed Detention Pond
Existing Storm Drain Pipe
Proposed Storm Drain Pipe
Existing Stream/Canal
Outfall Relocation
Historic Canal

300 0 300 600 Feet



Panel Extent
Alternative 1

March 2005

Figure 2-17g.

Alternative 1 Details
11400 South: Beckstead Ditch to 300 West

11400 SOUTH
Environmental Impact Statement

Panel 1

Panel 2

Panel 3

Bangerter Hwy

12600 South

3600 West

Mountain View Dr

Janice Dr

Utah Lake Distributing Canal

3240 W

3200 W

Rosberg Dr

Elm Meadows Rd

3115 W

Martinez Wy

Dunhammer Dr

2700 West

12640 S

2565 W

2360 W

2295 W

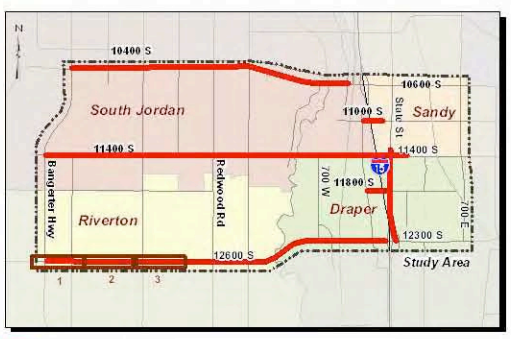
Utah and Salt Lake Canal

Timp View Dr

2200 W

Alternative Right-of-Way Line
Raised Median
Proposed Retaining Wall
Relocation
Relocation from Other Project
Historic Relocation
Historic Strip Take
Historic Property
Major Signalized Intersection
Existing Detention Pond
Proposed Detention Pond
Existing Storm Drain Pipe
Proposed Storm Drain Pipe
Existing Stream/Canal
Outfall Relocation
Historic Canal

300 0 300 600 Feet



Panel Extent
Alternative 1

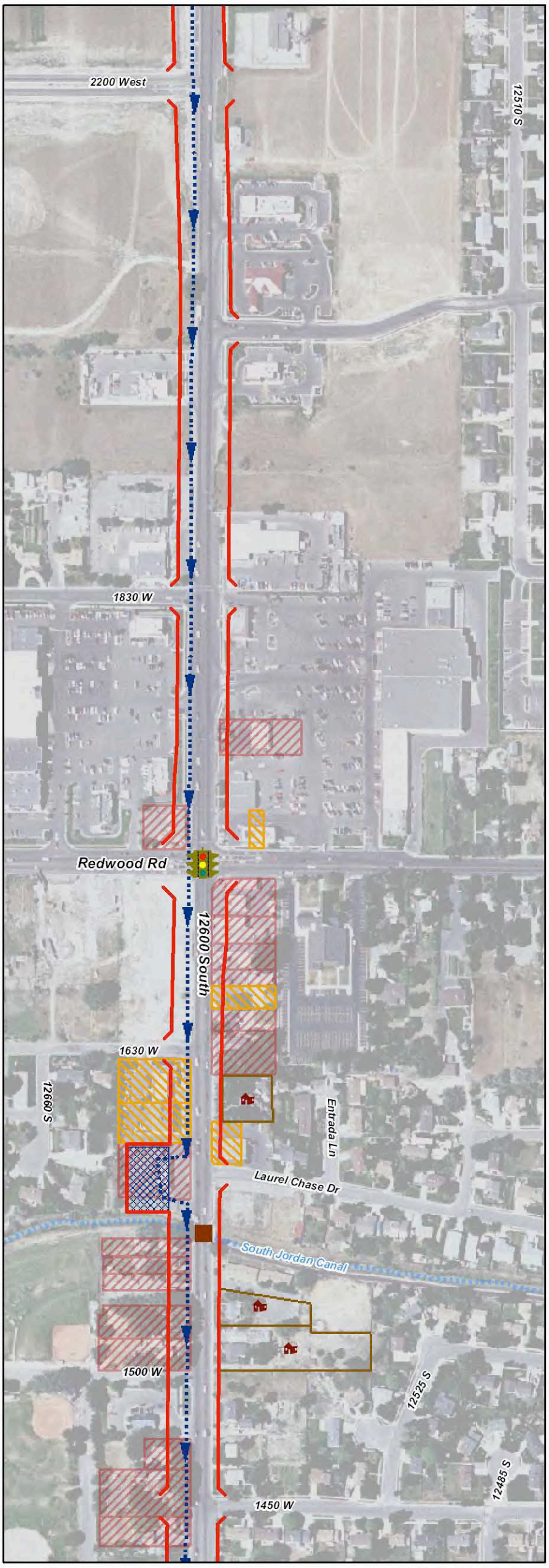
2005

Figure 2-17h.

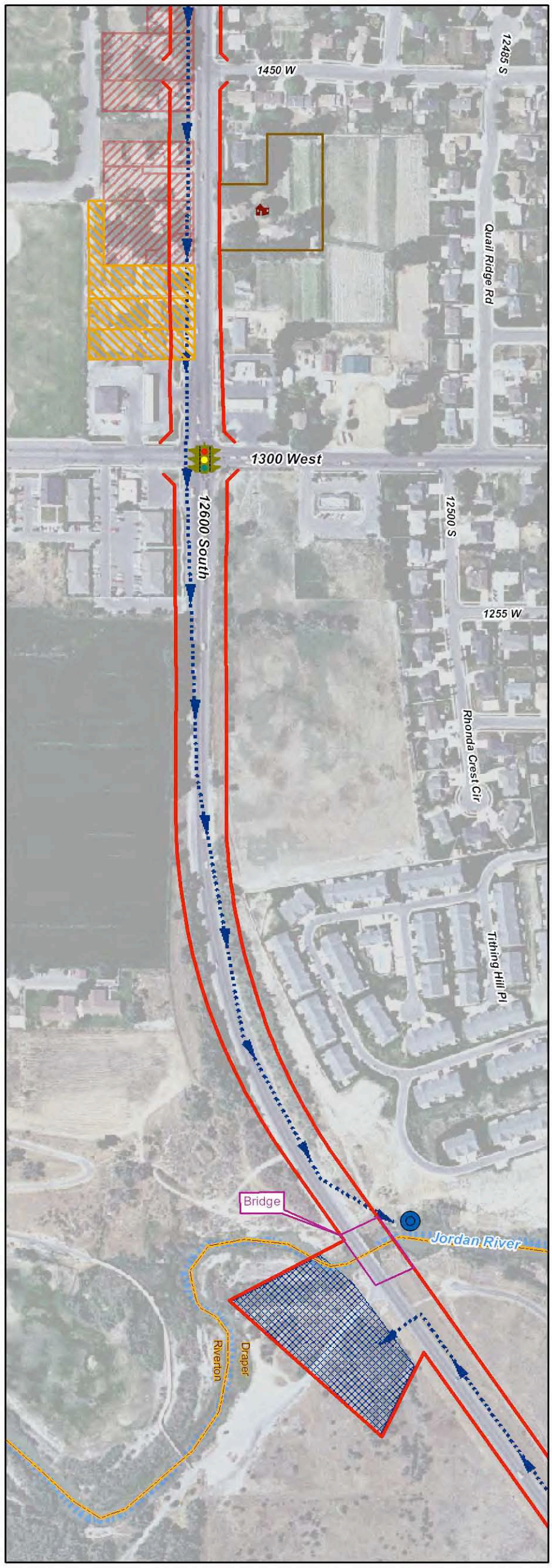
Alternative 1 Details
12600 South: Bangerter Highway to 2200 West

11400 SOUTH
Environmental Impact Statement

Panel 1

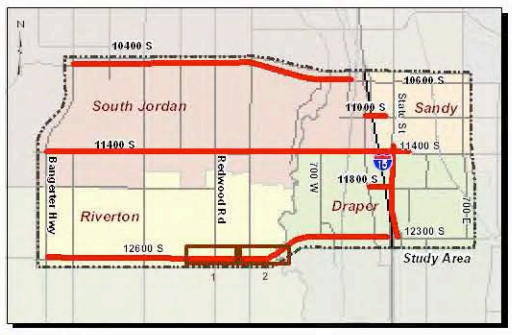


Panel 2



Alternative Right-of-Way Line
Raised Median
Proposed Retaining Wall
Relocation
Relocation from Other Project
Historic Relocation
Historic Strip Take
Historic Property
Major Signalized Intersection
Existing Detention Pond
Proposed Detention Pond
Existing Storm Drain Pipe
Proposed Storm Drain Pipe
Existing Stream/Canal
Outfall Relocation
Historic Canal

300 0 300 600 Feet



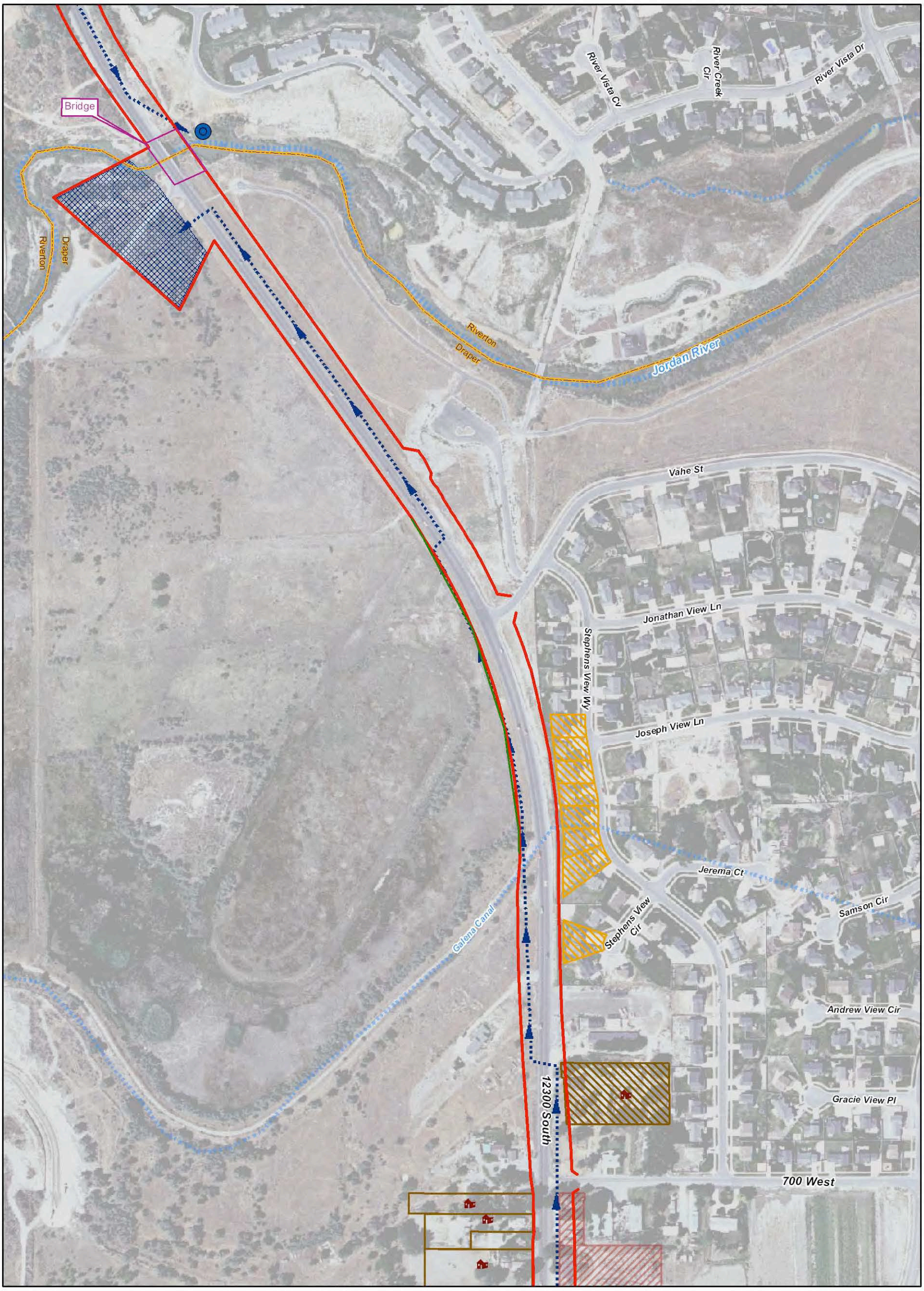
Panel Extent
Alternative 1

2005

Figure 2-17i.

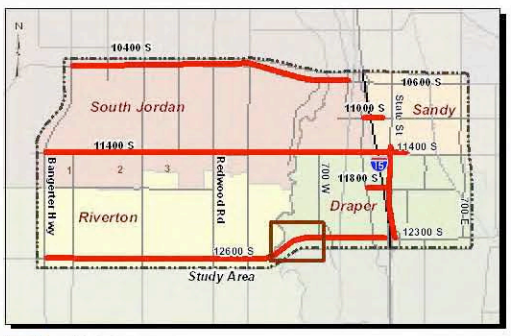
Alternative 1 Details
12600 South: 2200 West to Jordan River

11400 SOUTH
Environmental Impact Statement



Alternative Right-of-Way Line
Raised Median
Proposed Retaining Wall
Relocation
Relocation from Other Project
Historic Relocation
Historic Strip Take
Historic Property
Major Signalized Intersection
Existing Detention Pond
Proposed Detention Pond
Existing Storm Drain Pipe
Proposed Storm Drain Pipe
Existing Stream/Canal
Outfall Relocation
Historic Canal

300 0 300 600 Feet



Panel Extent
Alternative 1

2005

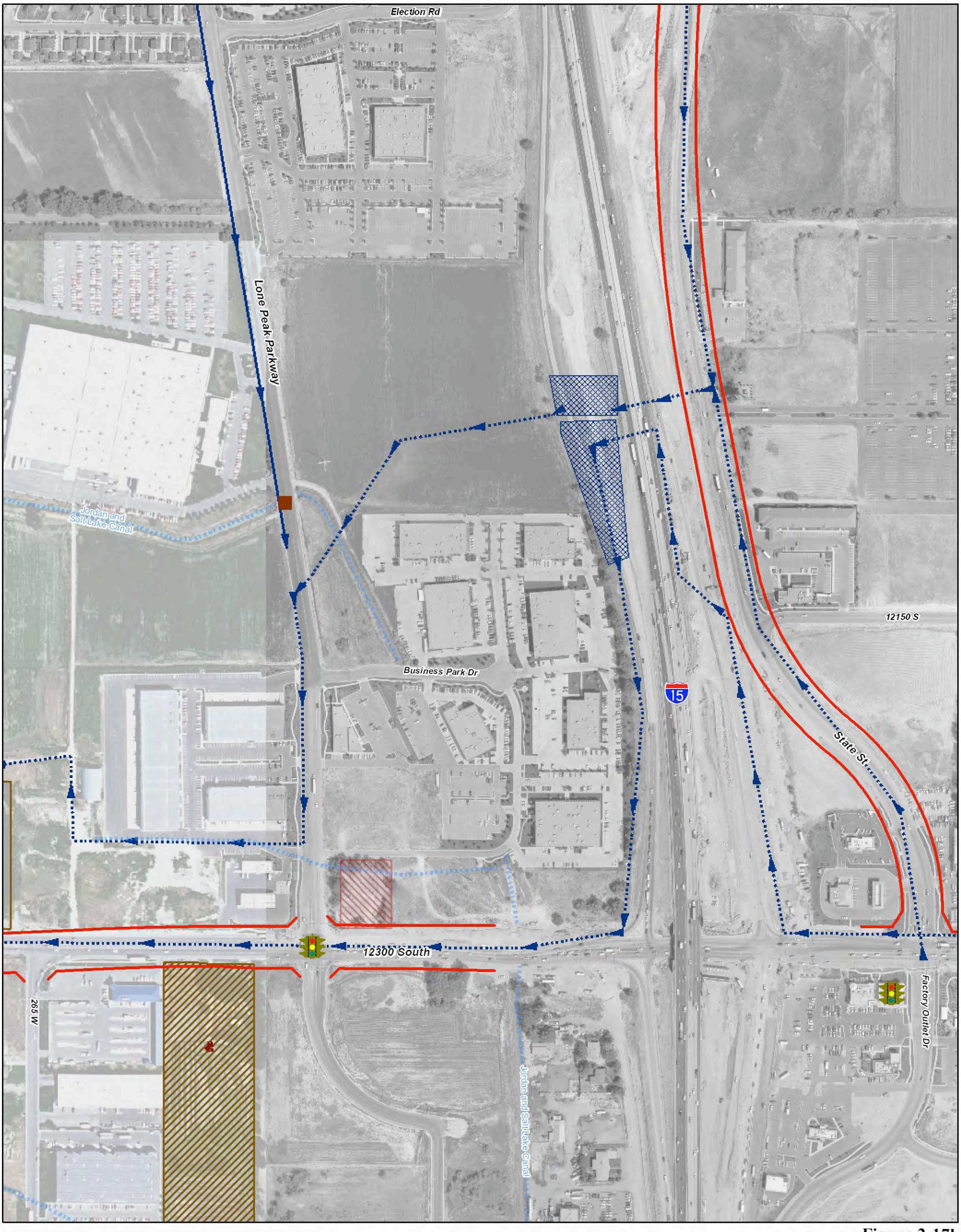
Figure 2-17j.

Alternative 1 Details
12300 South: Jordan River to 700 West

11400 SOUTH
Environmental Impact Statement

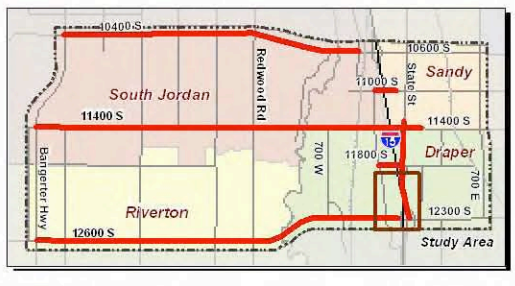
Alternative 1 Details
12300 South: 700 West to 265 West

11400 SOUTH
Environmental Impact Statement



Alternative Right-of-Way Line
Raised Median
Proposed Retaining Wall
Relocation
Relocation from Other Project
Historic Relocation
Historic Strip Take
Historic Property
Major Signalized Intersection
Existing Detention Pond
Proposed Detention Pond
Existing Storm Drain Pipe
Proposed Storm Drain Pipe
Existing Stream/Canal
Outfall Relocation
Historic Canal

300 0 300 600 Feet



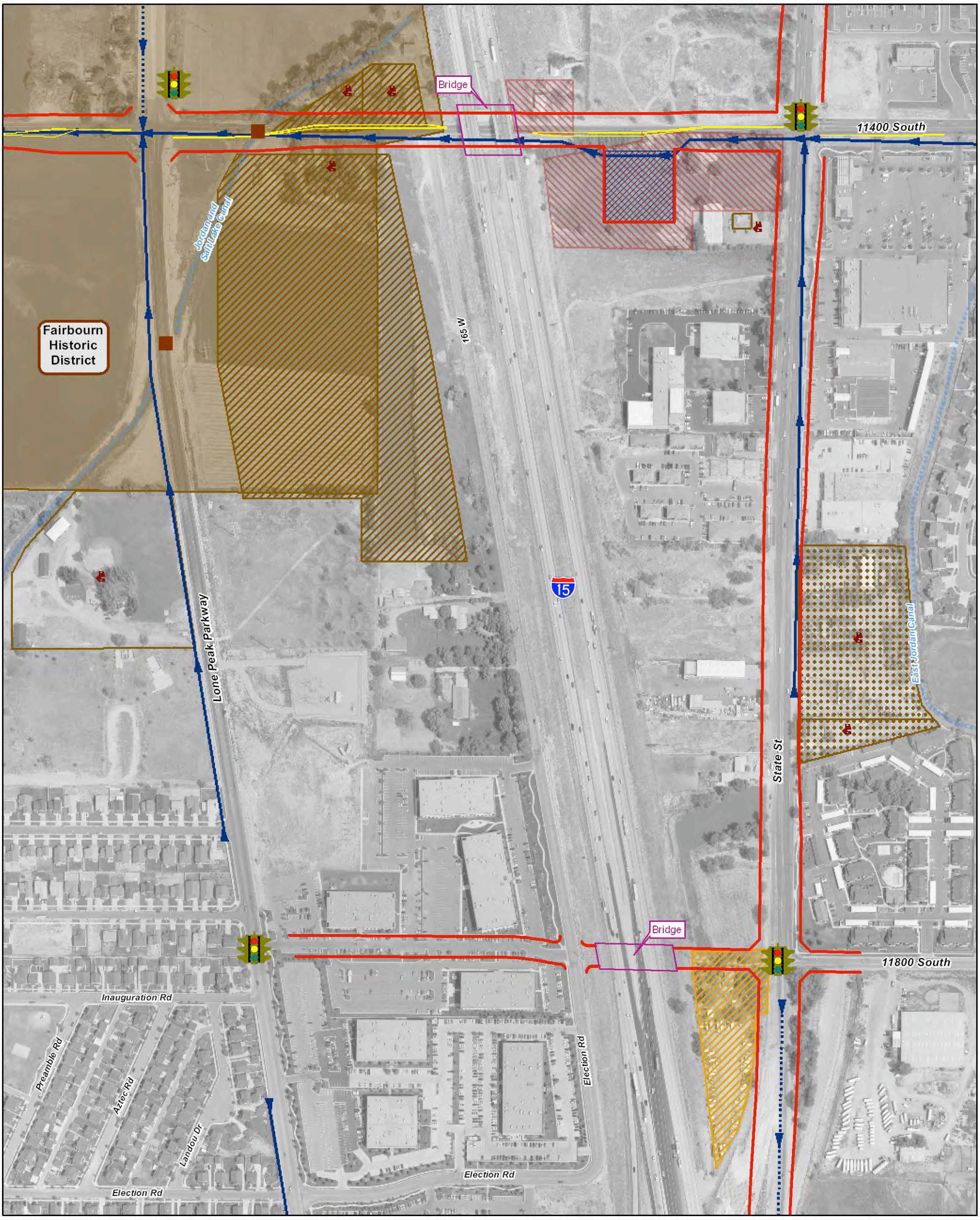
Panel Extent
Alternative 1

2005

Figure 2-17l.

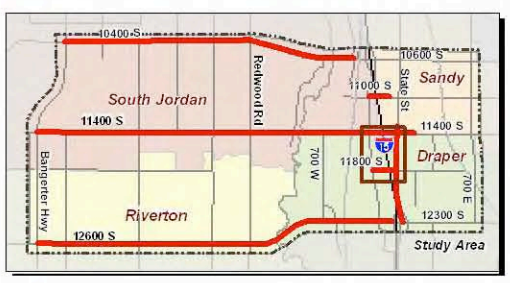
Alternative 1 Details
12300 South: 265 West to Jordan and Salt Lake Canal; State Street: 12300 South to Election Road

11400 SOUTH
Environmental Impact Statement



Alternative Right-of-Way Line
New Median
Proposed Retaining Wall
Historic Relocation
Relocation
Relocation from Other Project
Historic Strip Take
Historic Property
Major Signalized Intersection
Existing Detention Pond
Proposed Detention Pond
Existing Storm Drain Pipe
Proposed Storm Drain Pipe
Existing Stream/Canal
Outfall Relocation
Historic Canal

300 0 300 600 Feet



Panel Extent
Alternative 1

2005

Figure 2-17m.

Alternative 1 Details
State Street: Election Road to 11400 South;
11400 South: 300 West to State Street;
11800 South

11400 SOUTH
Environmental Impact Statement

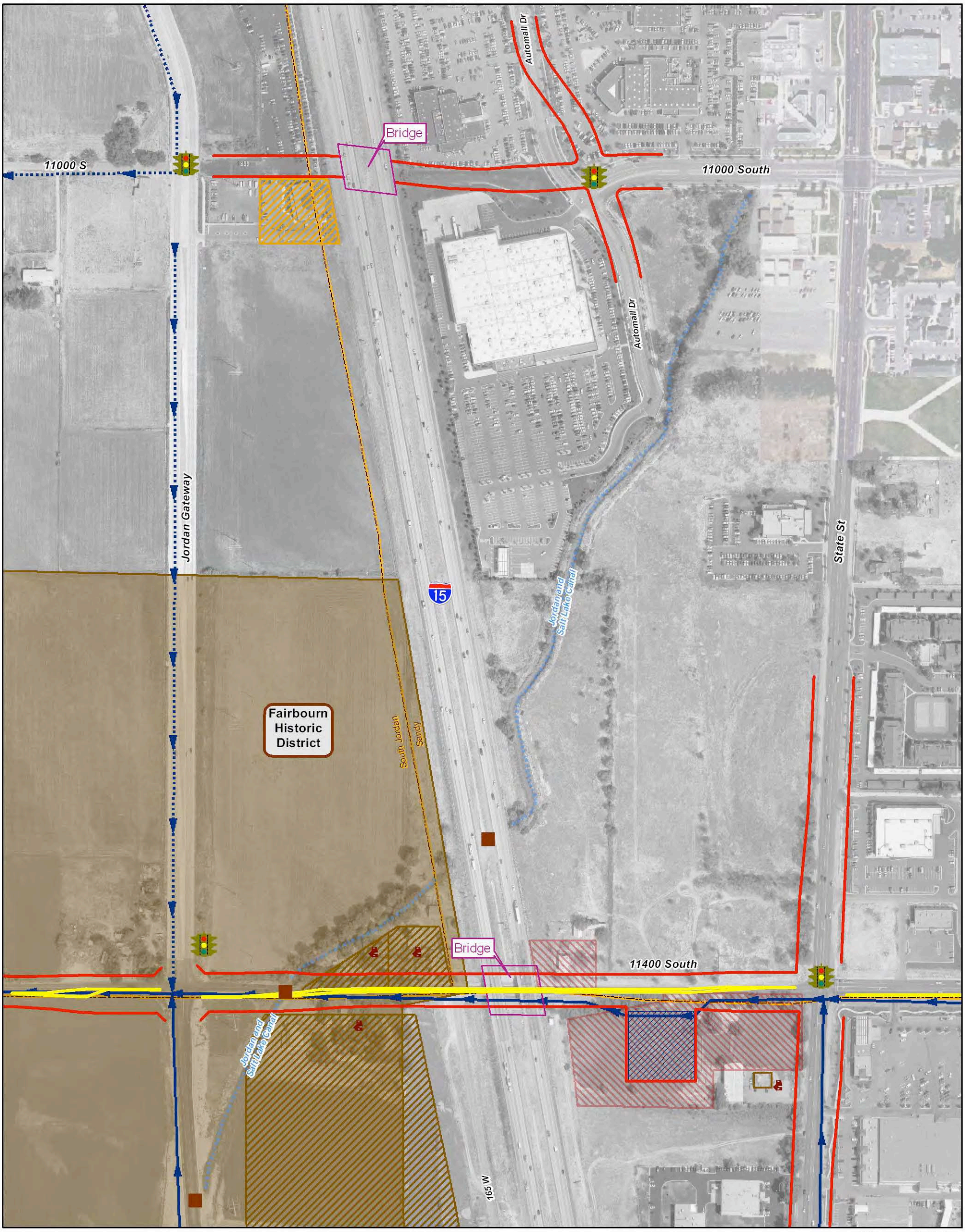
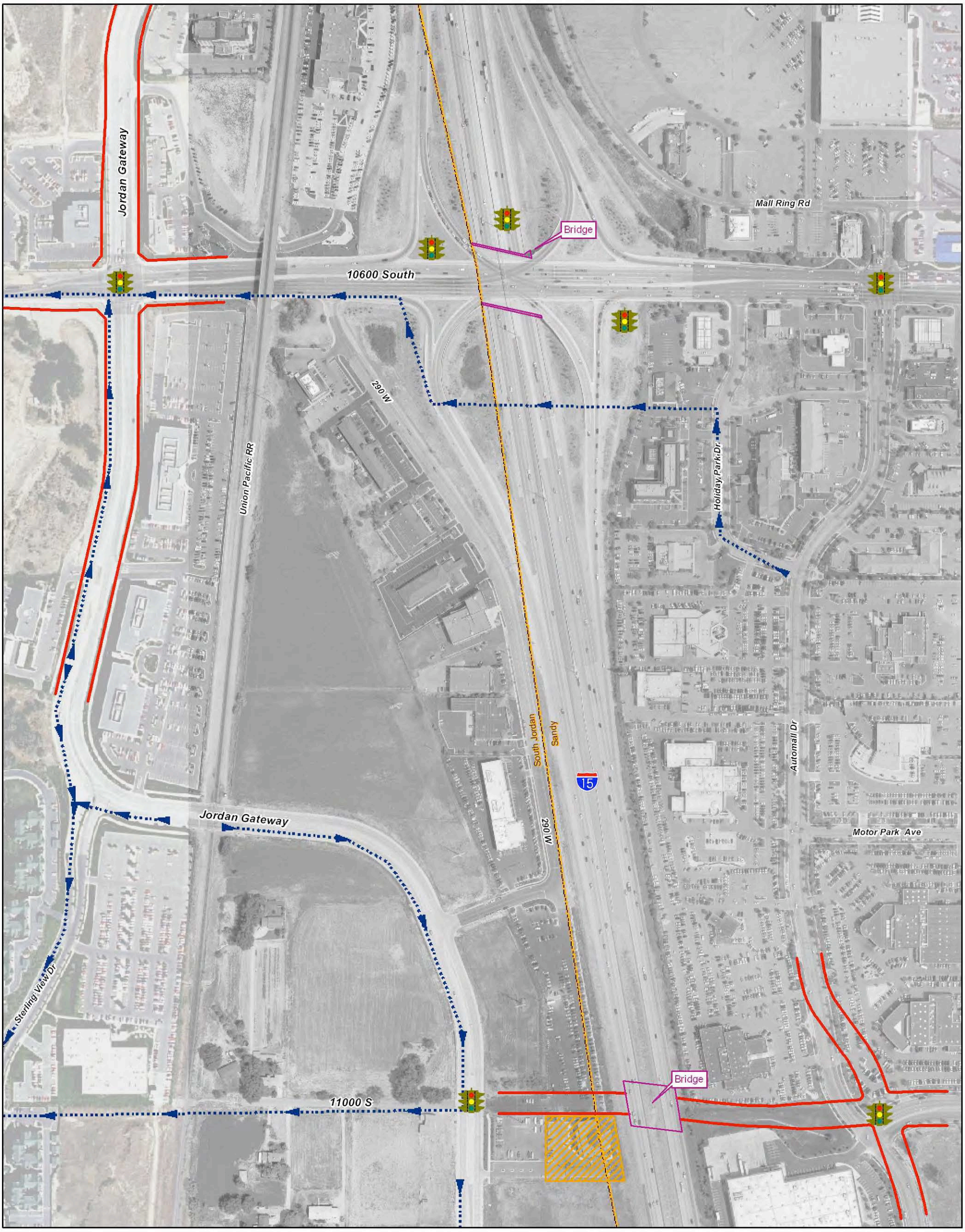


Figure 2-17n.

Alternative 1 Details
11000 South

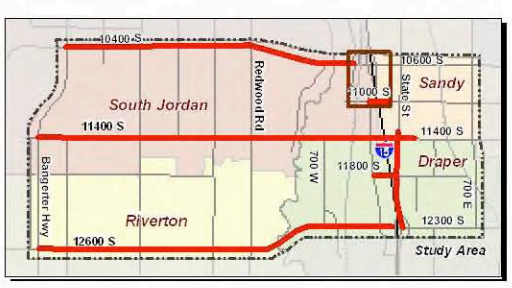
11400 SOUTH
Environmental Impact Statement

2005



Alternative Right-of-Way Line
Raised Median
Proposed Retaining Wall
Relocation
Relocation from Other Project
Historic Relocation
Historic Strip Take
Historic Property
Major Signalized Intersection
Existing Detention Pond
Proposed Detention Pond
Existing Storm Drain Pipe
Proposed Storm Drain Pipe
Existing Stream/Canal
Outfall Relocation
Historic Canal

300 0 300 600 Feet



Panel Extent
Alternative 1

2005

Figure 2-17o.

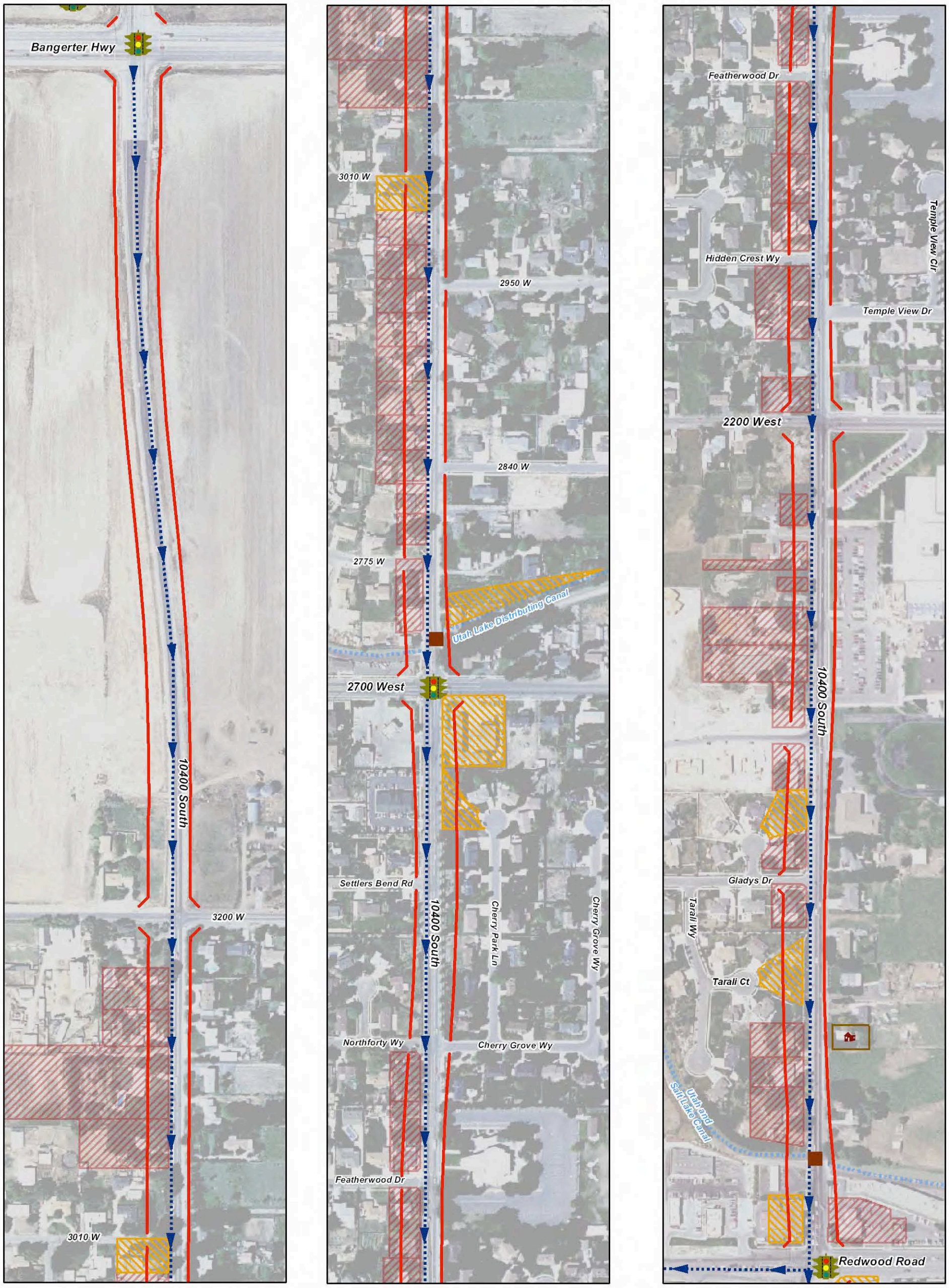
Alternative 1 Details
I-15: 10600 South

11400 SOUTH
Environmental Impact Statement

Panel 1

Panel 2

Panel 3



Alternative Right-of-Way Line
Raised Median
Proposed Retaining Wall
Relocation
Relocation from Other Project
Historic Relocation
Historic Strip Take
Historic Property
Major Signalized Intersection
Existing Detention Pond
Proposed Detention Pond
Existing Storm Drain Pipe
Proposed Storm Drain Pipe
Existing Stream/Canal
Outfall Relocation
Historic Canal

300 0 300 600 Feet

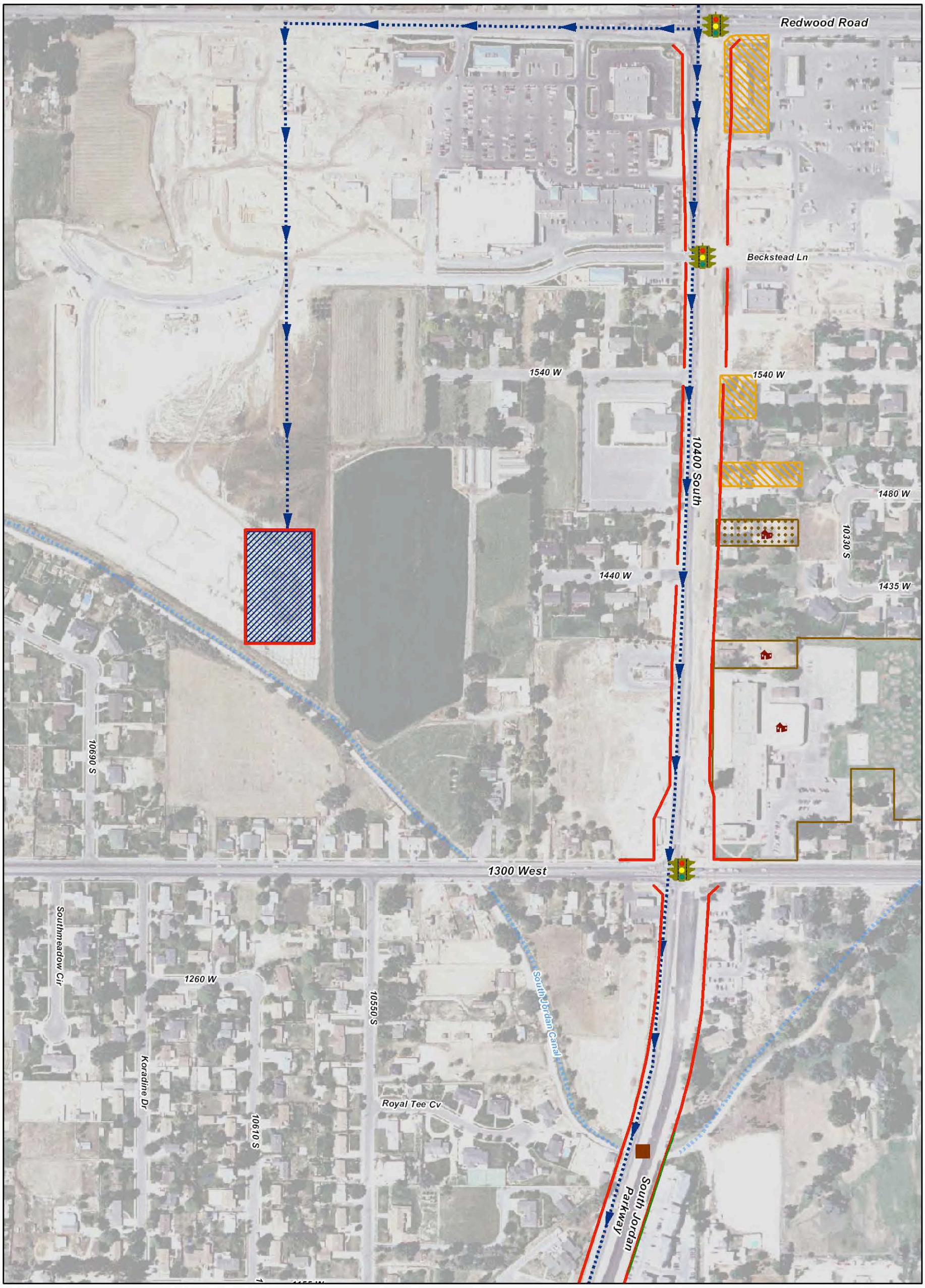
Panel Extent
Alternative 3A

2005

Figure 2-18a.

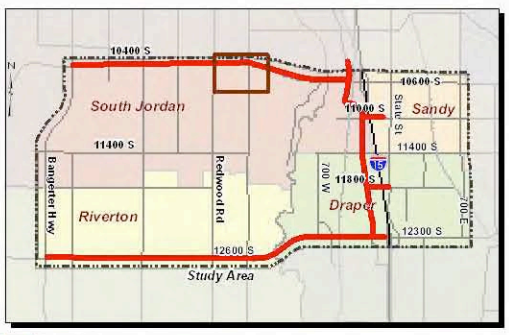
Alternative 3A Details
10400 South: Bangerter Highway to Redwood Road

11400 SOUTH
Environmental Impact Statement



Alternative Right-of-Way Line
Raised Median
Proposed Retaining Wall
Relocation
Relocation from Other Project
Historic Relocation
Historic Strip Take
Historic Property
Major Signalized Intersection
Existing Detention Pond
Proposed Detention Pond
Existing Storm Drain Pipe
Proposed Storm Drain Pipe
Existing Stream/Canal
Outfall Relocation
Historic Canal

300 0 300 600 Feet



2005

Figure 2-18b.

Alternative 3A Details
10400 South: Redwood Road to South Jordan Canal

11400 SOUTH
Environmental Impact Statement

Alternative 3A Details
10400 South: South Jordan Canal to River Front Parkway

11400 SOUTH
Environmental Impact Statement

River Front Parkway

Jordan River

Bridge

10600 South

Galena Canal

Jordan Gateway

Union Pacific RR

290 W

Alternative Right-of-Way Line
Raised Median
Proposed Retaining Wall
Relocation
Relocation from Other Project
Historic Relocation
Historic Strip Take
Historic Property
Major Signalized Intersection
Existing Detention Pond
Proposed Detention Pond
Existing Storm Drain Pipe
Proposed Storm Drain Pipe
Existing Stream/Canal
Outfall Relocation
Historic Canal

300 0 300 600 Feet

Panel Extent
Alternative 3A

2005

Figure 2-18d.

Alternative 3A Details
10600 South: River Front Parkway to Jordan Gateway

11400 SOUTH
Environmental Impact Statement

Panel 1

Panel 2

Panel 3

Bangerter Hwy

3600 West

12600 South

Mountain View Dr

Janice Dr

Utah Lake Distributing Canal

3240 W

3200 W

Rosberg Dr

Elm Meadows Rd

3115 W

Martinez Wy

Dunhammer Dr

2700 West

2565 W

12640 S

2360 W

2295 W

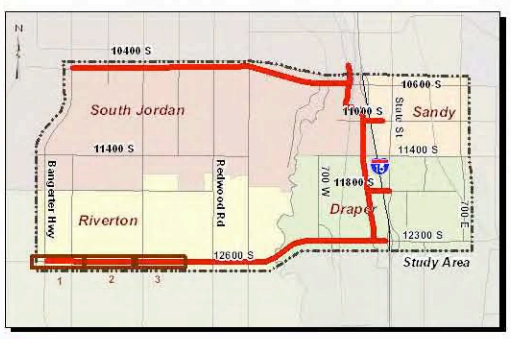
Utah and Salt Lake Canal

Timp View Dr

2200 W

Alternative Right-of-Way Line
Raised Median
Proposed Retaining Wall
Relocation
Relocation from Other Project
Historic Relocation
Historic Strip Take
Historic Property
Major Signalized Intersection
Existing Detention Pond
Proposed Detention Pond
Existing Storm Drain Pipe
Proposed Storm Drain Pipe
Existing Stream/Canal
Outfall Relocation
Historic Canal

300 0 300 600 Feet



Panel Extent
Alternative 3A

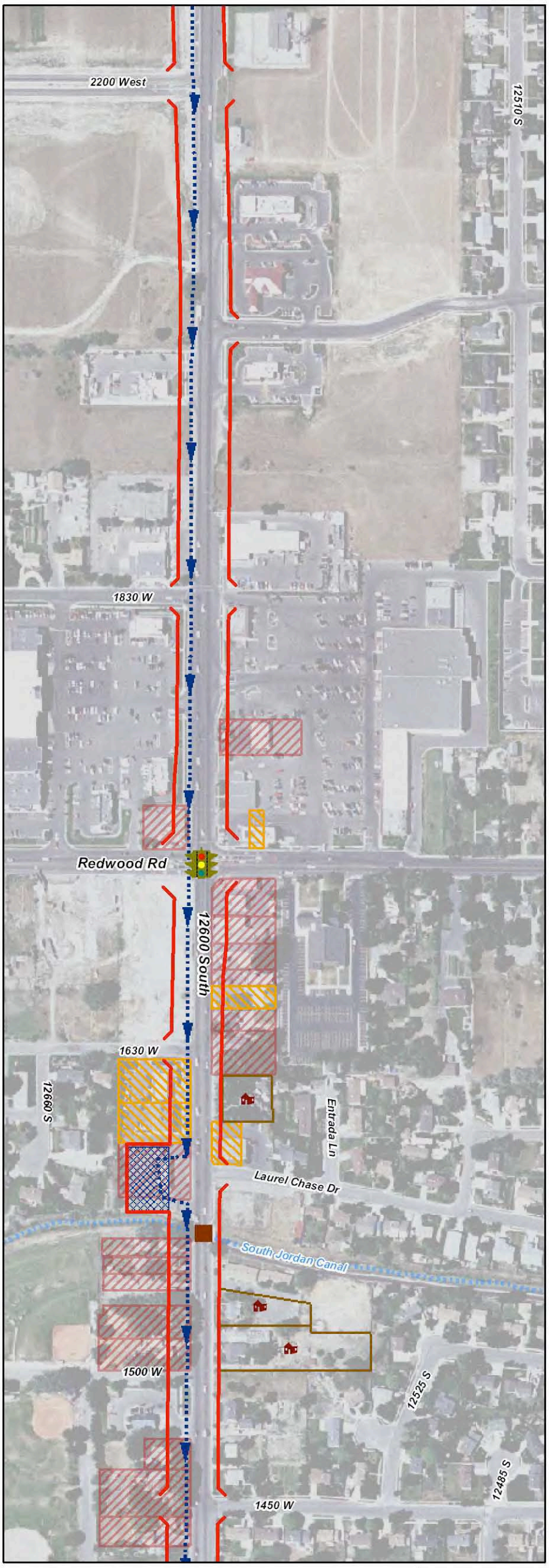
Figure 2-18e.

Alternative 3A Details
12600 South: Bangerter Highway to 2200 West

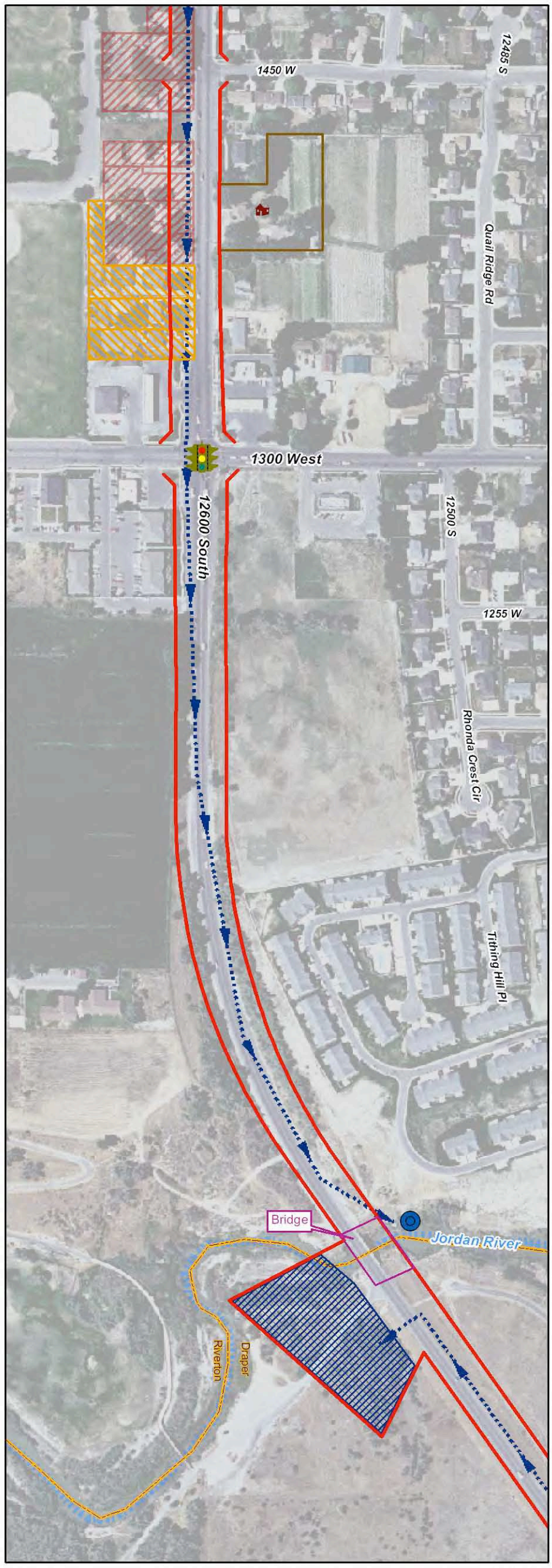
11400 SOUTH
Environmental Impact Statement

2005

Panel 1

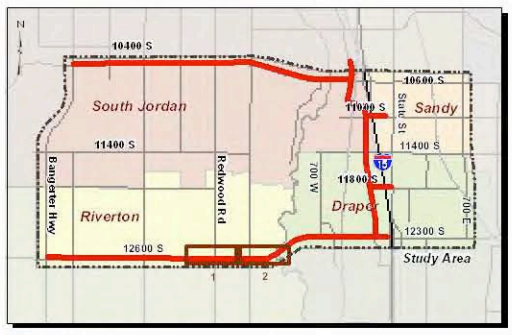


Panel 2



Alternative Right-of-Way Line
Raised Median
Proposed Retaining Wall
Relocation
Relocation from Other Project
Historic Relocation
Historic Strip Take
Historic Property
Major Signalized Intersection
Existing Detention Pond
Proposed Detention Pond
Existing Storm Drain Pipe
Proposed Storm Drain Pipe
Existing Stream/Canal
Outfall Relocation
Historic Canal

300 0 300 600 Feet



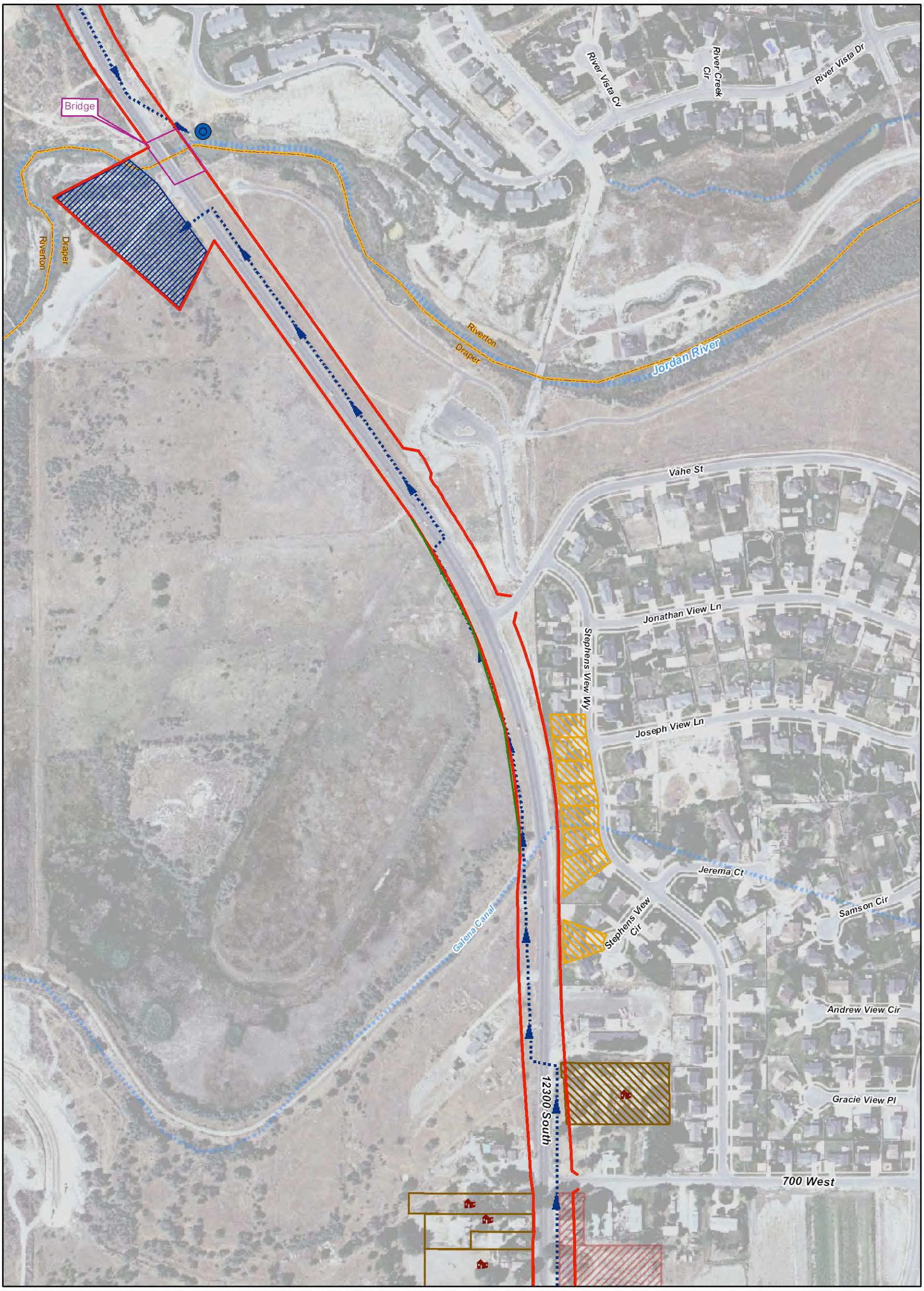
Panel Extent
Alternative 3A

2005

Figure 2-18f.

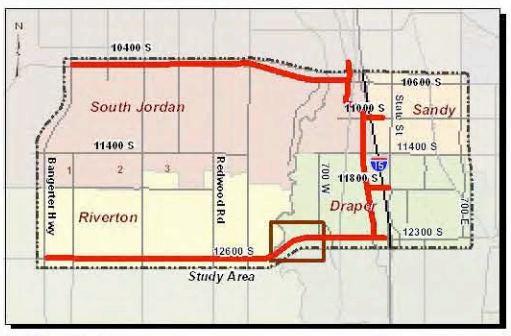
Alternative 3A Details
12600 South: 2200 West to Jordan River

11400 SOUTH
Environmental Impact Statement



Alternative Right-of-Way Line
Raised Median
Proposed Retaining Wall
Relocation
Relocation from Other Project
Historic Relocation
Historic Strip Take
Historic Property
Major Signalized Intersection
Existing Detention Pond
Proposed Detention Pond
Existing Storm Drain Pipe
Proposed Storm Drain Pipe
Existing Stream/Canal
Outfall Relocation
Historic Canal

300 0 300 600 Feet



Panel Extent
Alternative 3A

2005

Figure 2-18g.

Alternative 3A Details
12300 South: Jordan River to 700 West

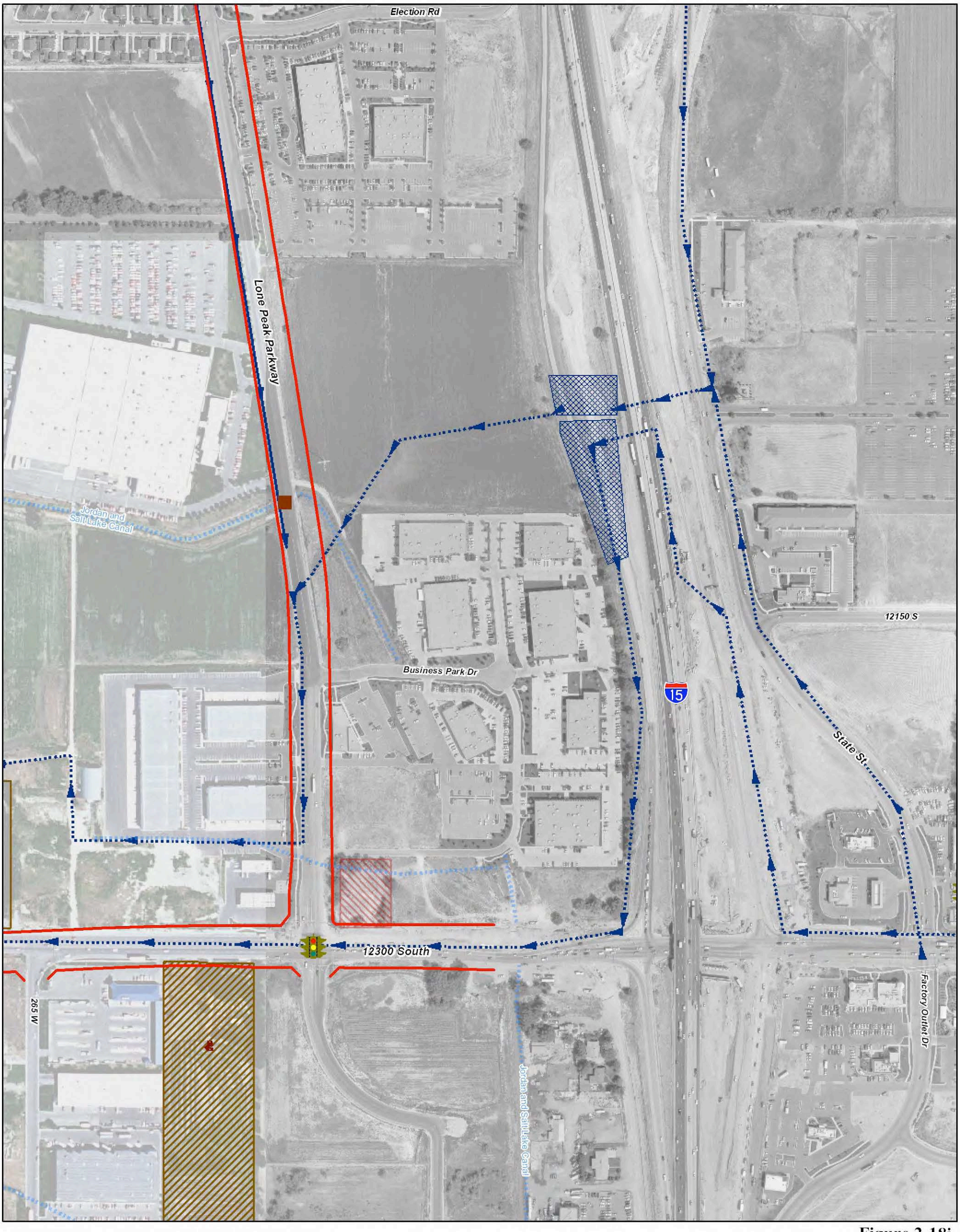
11400 SOUTH
Environmental Impact Statement

2005

Figure 2-18h.

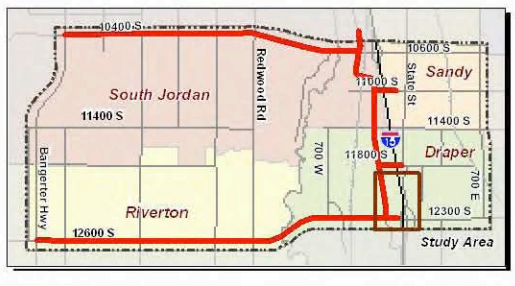
Alternative 3A Details
12300 South: 700 West to 265 West

11400 SOUTH
Environmental Impact Statement



Alternative Right-of-Way Line
Raised Median
Proposed Retaining Wall
Relocation
Relocation from Other Project
Historic Relocation
Historic Strip Take
Historic Property
Major Signalized Intersection
Existing Detention Pond
Proposed Detention Pond
Existing Storm Drain Pipe
Proposed Storm Drain Pipe
Existing Stream/Canal
Outfall Relocation
Historic Canal

300 0 300 600 Feet



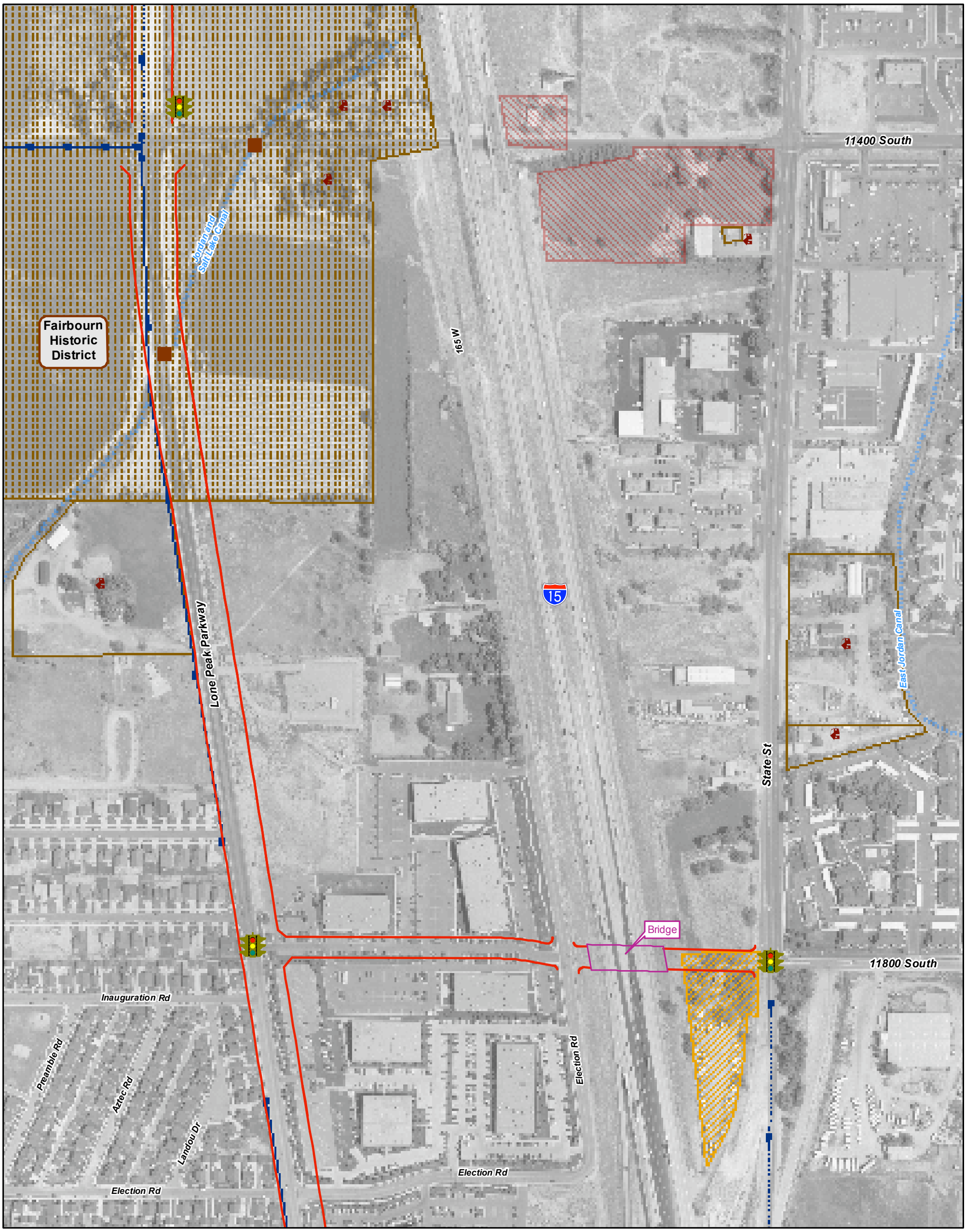
Panel Extent
Alternative 3A

2005

Figure 2-18i.

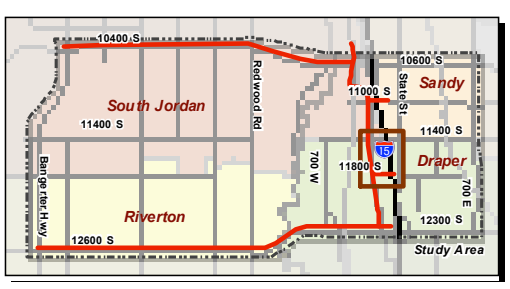
Alternative 3A Details
12300 South: 265 West to Jordan and Salt Lake Canal; Lone Peak Parkway: 12300 South to Election Road

11400 SOUTH
Environmental Impact Statement



Alternative Right-of-Way Line
Raised Median
Proposed Retaining Wall
Relocation
Relocation from Other Project
Historic Relocation
Historic Strip Take
Historic Property
Major Signalized Intersection
Existing Detention Pond
Proposed Detention Pond
Existing Storm Drain Pipe
Proposed Storm Drain Pipe
Existing Stream/Canal
Outfall Relocation
Historic Canal

300 0 300 600 Feet



Panel Extent
Alternative 3A

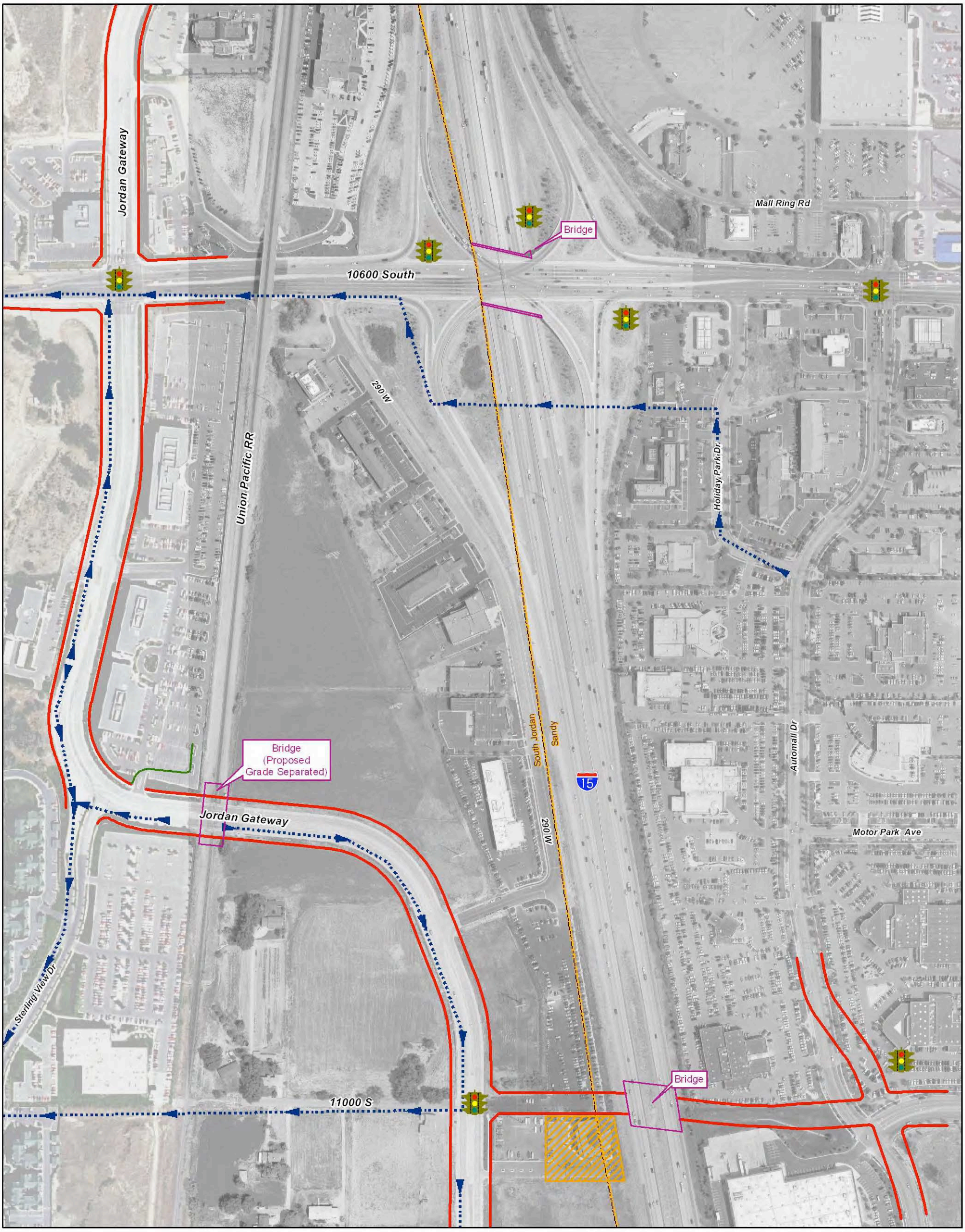
2005

Figure 2-18j.

Alternative 3A Details
Lone Peak Parkway: Election Road to 11400 South;
11800 South

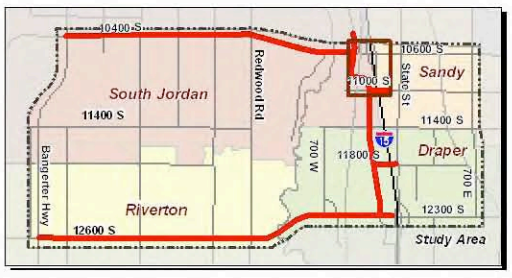
11400 SOUTH
Environmental Impact Statement

2005



Alternative Right-of-Way Line
Raised Median
Proposed Retaining Wall
Relocation
Relocation from Other Project
Historic Relocation
Historic Strip Take
Historic Property
Major Signalized Intersection
Existing Detention Pond
Proposed Detention Pond
Existing Storm Drain Pipe
Proposed Storm Drain Pipe
Existing Stream/Canal
Outfall Relocation
Historic Canal

300 0 300 600 Feet



Panel Extent
Alternative 3A

2005

Figure 2-18l.

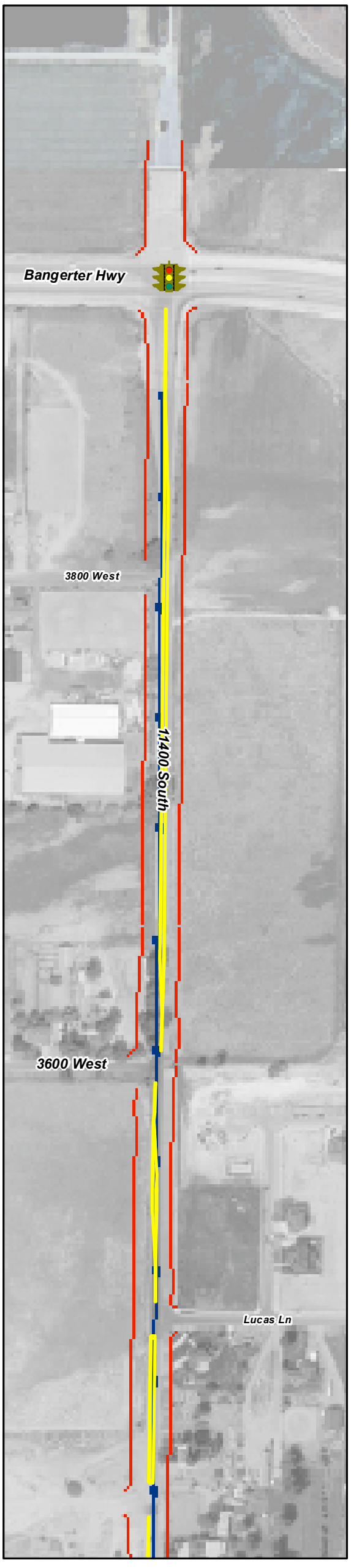
Alternative 3A Details
Jordan Gateway: 11000 South to 10600 South;
I-15: 10600 South

11400 SOUTH
Environmental Impact Statement

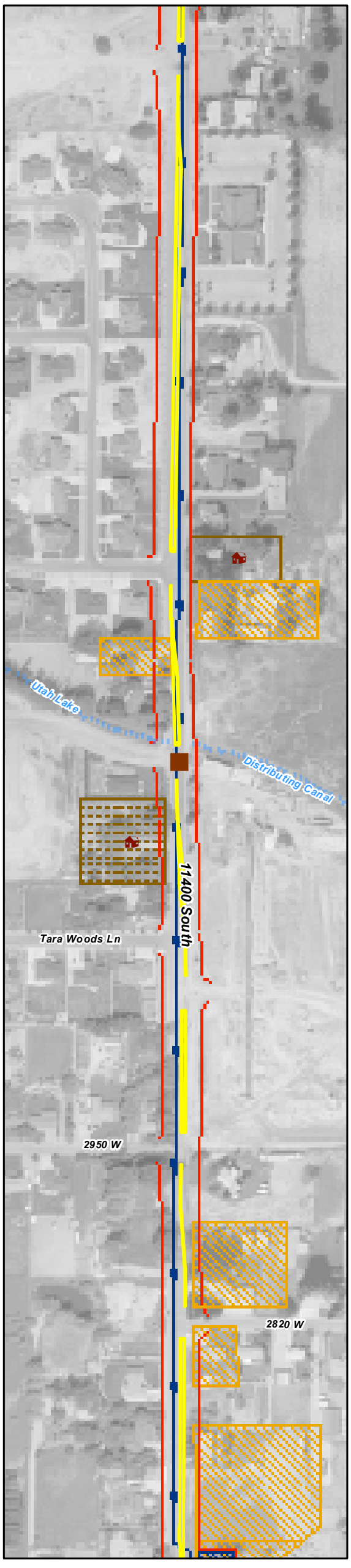
Alternative 4 Details
10600 South: River Front Parkway to Jordan Gateway

11400 SOUTH
Environmental Impact Statement

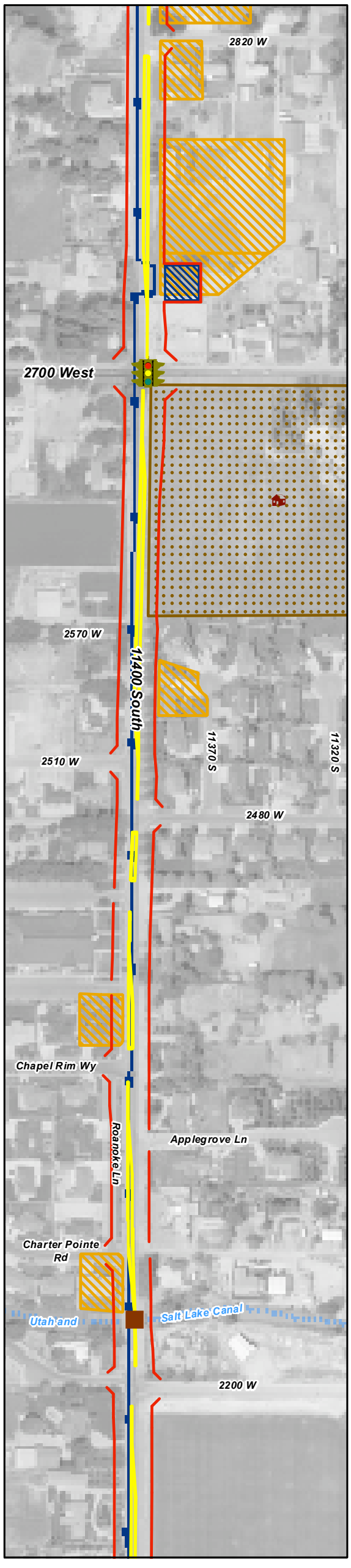
Panel 1

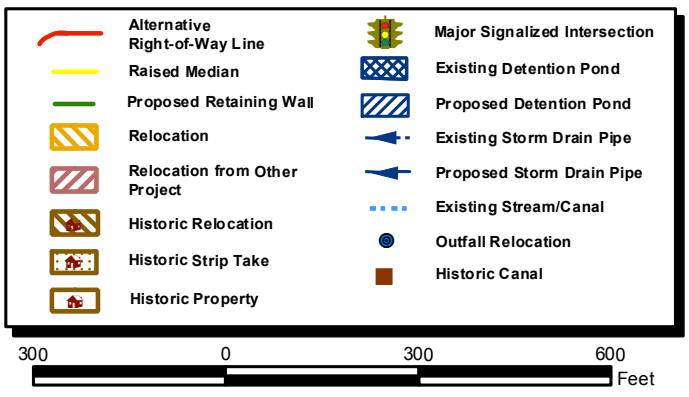


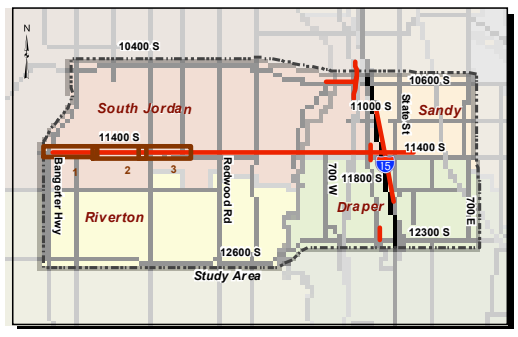
Panel 2



Panel 3







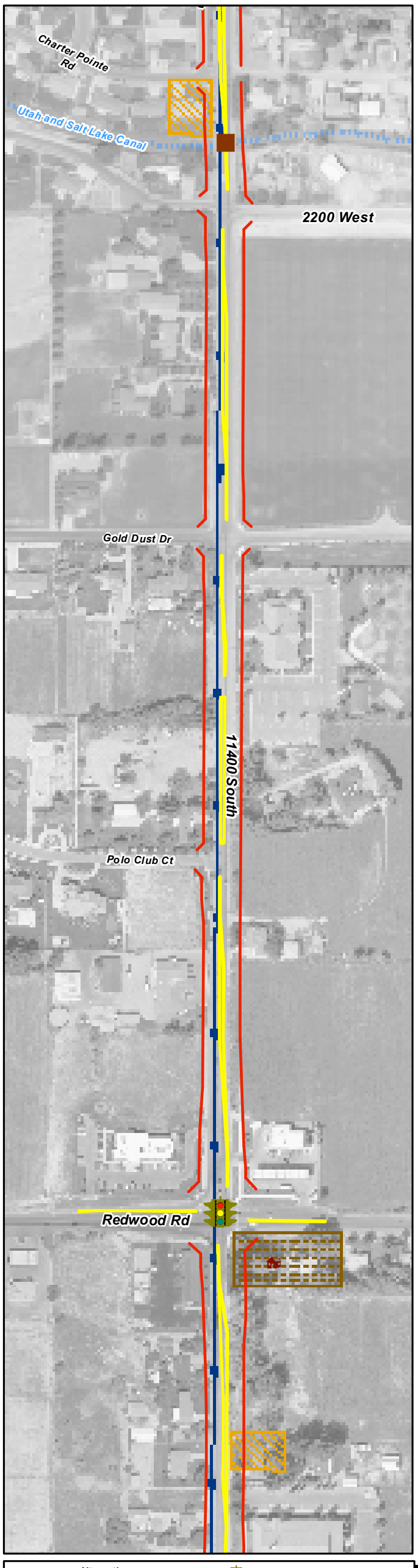
2005

Figure 2-19b.

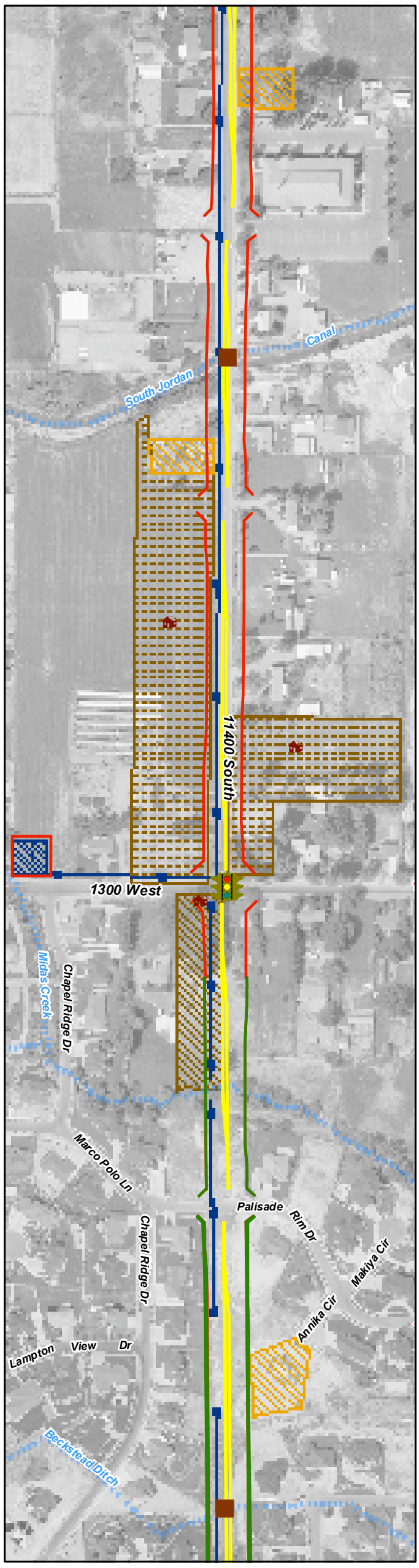
Alternative 4 Details
11400 South: Bangerter Highway to 2200 West

11400 SOUTH
Environmental Impact Statement

Panel 1



Panel 2



Alternative Right-of-Way Line
Raised Median
Proposed Retaining Wall
Relocation
Relocation from Other Project
Historic Relocation
Historic Strip Take
Historic Property
Major Signalized Intersection
Existing Detention Pond
Proposed Detention Pond
Existing Storm Drain Pipe
Proposed Storm Drain Pipe
Existing Stream/Canal
Outfall Relocation
Historic Canal

300 0 300 600 Feet

Panel Extent
Alternative 4

2005

Figure 2-19c.

Alternative 4 Details
11400 South: 2200 West to Beckstead Ditch

11400 SOUTH
Environmental Impact Statement

Panel 1

Panel 2

Detail Area

Lampton View Dr
Beckstead Ditch
Chapel Ridge Dr
Chapel View Cir
Louise Meadow Dr
Chapel View Dr
Rambouillet Dr
1020 W
River Front Parkway
Future Trail Connection
Pedestrian Bridge
Roadway Bridge
Jordan River
Draper
South Jordan
Galena Canal
Trent Dr
700 West
Trent Dr
South Jordan
Draper
675 W
11400 S
Brooke N
Lance Ln
Willow Creek
Bridge (Proposed Grade Separated)
Union Pacific Railroad (historic)
300 W
Fairbourn Historic District
Trent Dr
700 West
675 W
11400 South
Brooke N Lance Ln
Willow Creek
South Jordan
Draper
200 0 200 400 Feet
Building Outline
Curb and Gutter

Alternative Right-of-Way Line
Raised Median
Proposed Retaining Wall
Relocation
Relocation from Other Project
Historic Relocation
Historic Strip Take
Historic Property
Major Signalized Intersection
Existing Detention Pond
Proposed Detention Pond
Existing Storm Drain Pipe
Proposed Storm Drain Pipe
Existing Stream/Canal
Outfall Relocation
Historic Canal
300 0 300 600 Feet

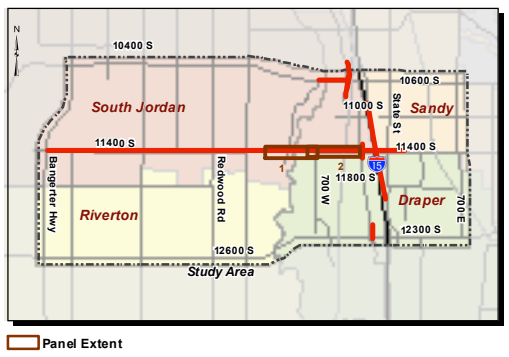


Figure 2-19d.

Alternative 4 Details
11400 South: Beckstead Ditch to 300 West

March 2005

11400 SOUTH
Environmental Impact Statement

Bridge

Interchange

Cul-de-sac

11400 South

Fairbourn Historic District

Jordan and Salt Lake Canal

Lone Peak Parkway

165 W

15

State St

East Jordan Canal

11800 South

Inauguration Rd

Preamble Rd

Aztec Rd

Landou Dr

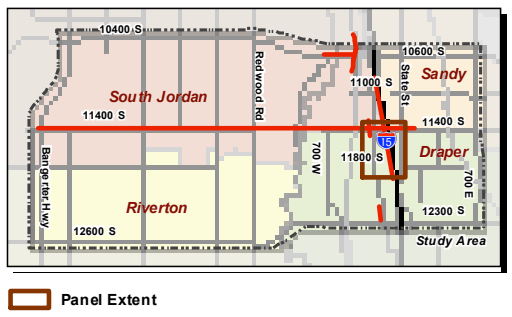
Election Rd

Election Rd

Election Rd

Alternative Right-of-Way Line
Raised Median
Proposed Retaining Wall
Relocation
Relocation from Other Project
Historic Relocation
Historic Strip Take
Historic Property
Major Signalized Intersection
Existing Detention Pond
Proposed Detention Pond
Existing Storm Drain Pipe
Proposed Storm Drain Pipe
Existing Stream/Canal
Outfall Relocation
Historic Canal

300 0 300 600 Feet



Panel Extent
Alternative 4

2005

Figure 2-19e.

Alternative 4 Details
11400 South: 300 West to State Street

11400 SOUTH
Environmental Impact Statement

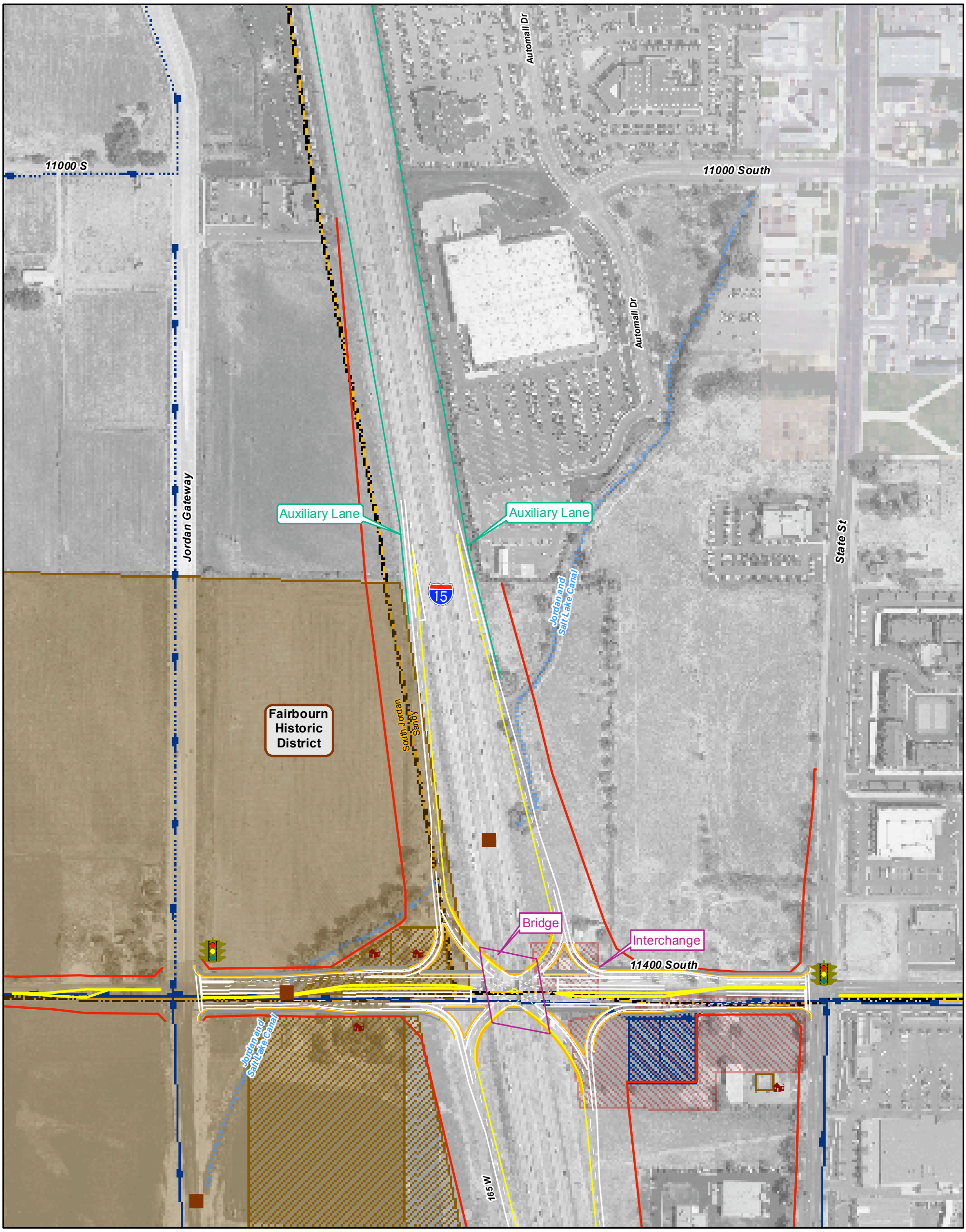
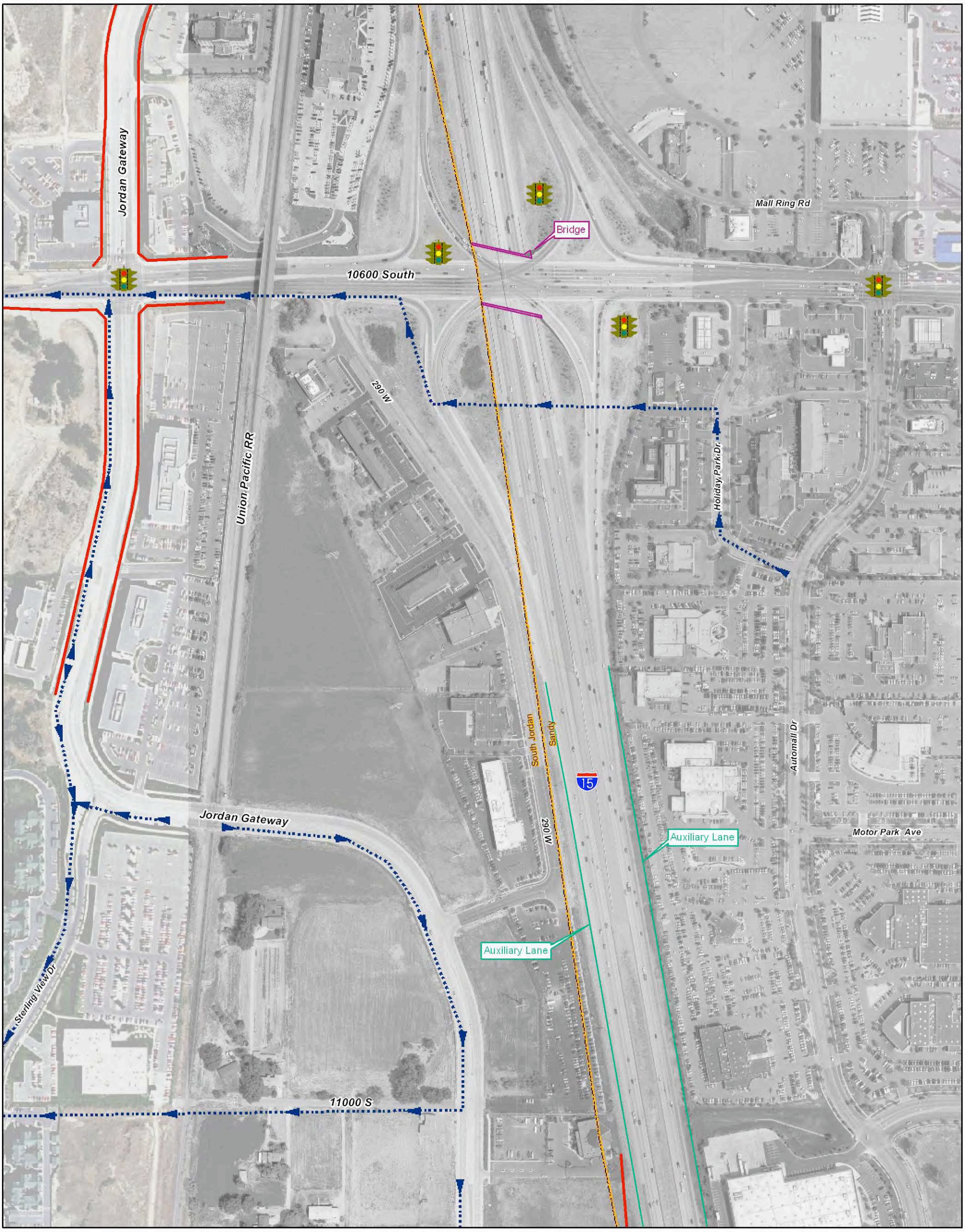


Figure 2-19f.

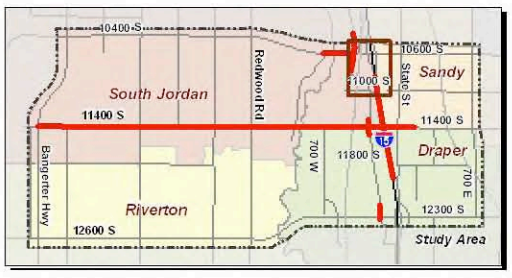
Alternative 4 Details
I-15: 11400 South to 11000 South

11400 SOUTH
Environmental Impact Statement



Alternative Right-of-Way Line
Raised Median
Proposed Retaining Wall
Relocation
Relocation from Other Project
Historic Relocation
Historic Strip Take
Historic Property
Major Signalized Intersection
Existing Detention Pond
Proposed Detention Pond
Existing Storm Drain Pipe
Proposed Storm Drain Pipe
Existing Stream/Canal
Outfall Relocation
Historic Canal

300 0 300 600 Feet



Panel Extent
Alternative 4

2005

Figure 2-19g.

Alternative 4 Details
I-15: 11000 South to 10600 South

11400 SOUTH
Environmental Impact Statement

Panel 1

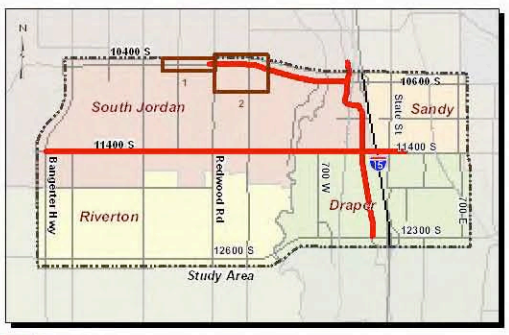
Panel 2

Featherwood Dr
Hidden Crest Wy
Temple View Cir
Temple View Dr
2200 West
10400 South
Gladys Dr
Tarali Wy
Tarali Ct
Utah and Salt Lake Canal
Redwood Road

Redwood Road
Beckstead Ln
1540 W
1540 W
1540 W
10400 South
10330 S
1440 W
1300 West
10550 S
South Jordan Canal
Royal Tee Cv
10610 S
South Jordan Parkway

Alternative Right-of-Way Line
Raised Median
Proposed Retaining Wall
Relocation
Relocation from Other Project
Historic Relocation
Historic Strip Take
Historic Property
Major Signalized Intersection
Existing Detention Pond
Proposed Detention Pond
Existing Storm Drain Pipe
Proposed Storm Drain Pipe
Existing Stream/Canal
Outfall Relocation
Historic Canal

300 0 300 600 Feet



2005

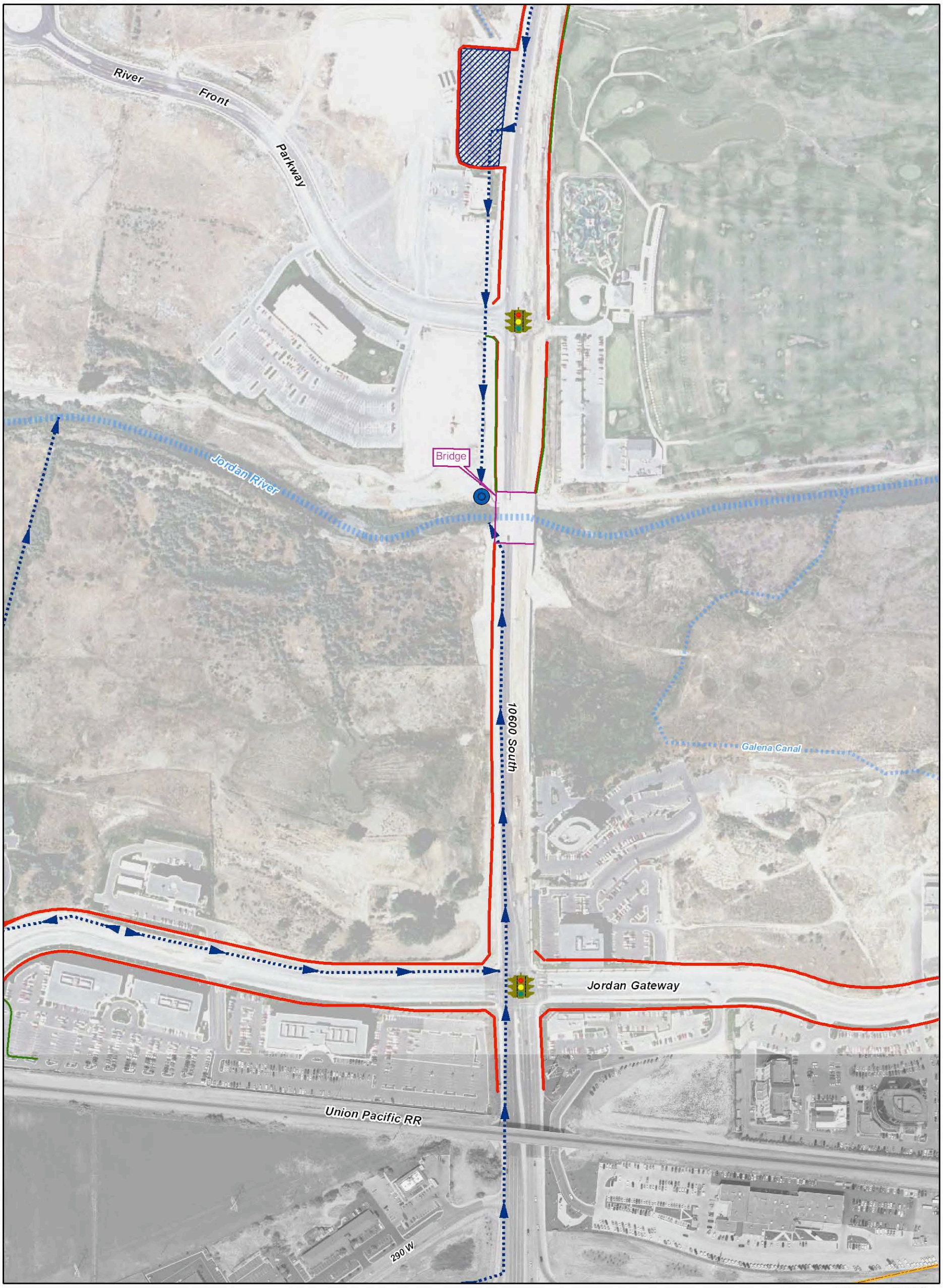
Figure 2-20a.

Alternative 7 Details
10400 South: 2200 West to South Jordan Canal

11400 SOUTH
Environmental Impact Statement

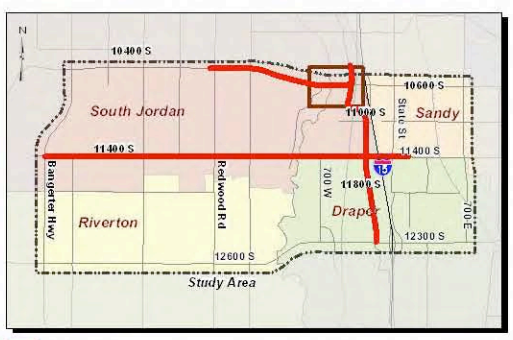
Alternative 7 Details
10400 South: South Jordan Canal to River Front Parkway

11400 SOUTH
Environmental Impact Statement



Alternative Right-of-Way Line
Raised Median
Proposed Retaining Wall
Relocation
Relocation from Other Project
Historic Relocation
Historic Strip Take
Historic Property
Major Signalized Intersection
Existing Detention Pond
Proposed Detention Pond
Existing Storm Drain Pipe
Proposed Storm Drain Pipe
Existing Stream/Canal
Outfall Relocation
Historic Canal

300 0 300 600 Feet



Panel Extent
Alternative 7

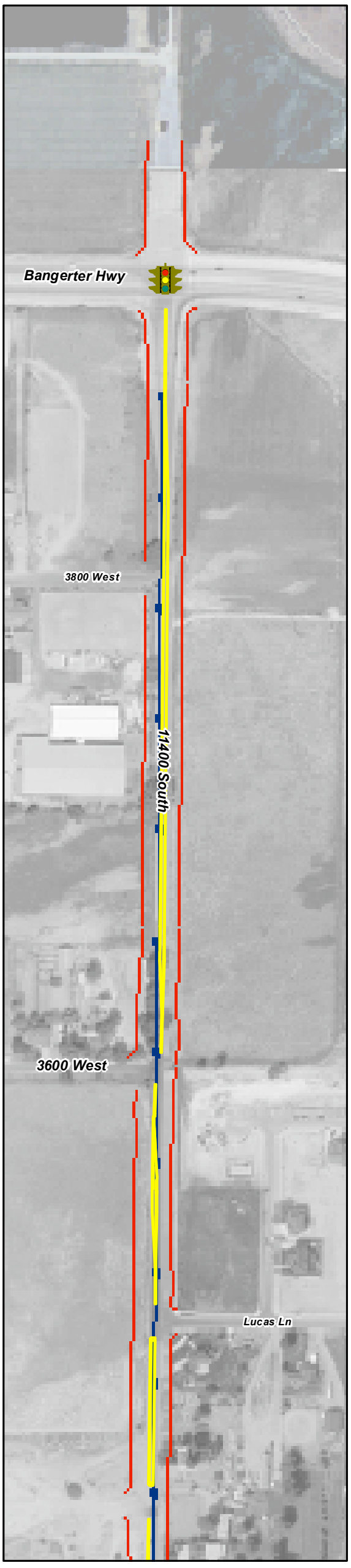
2005

Figure 2-20c.

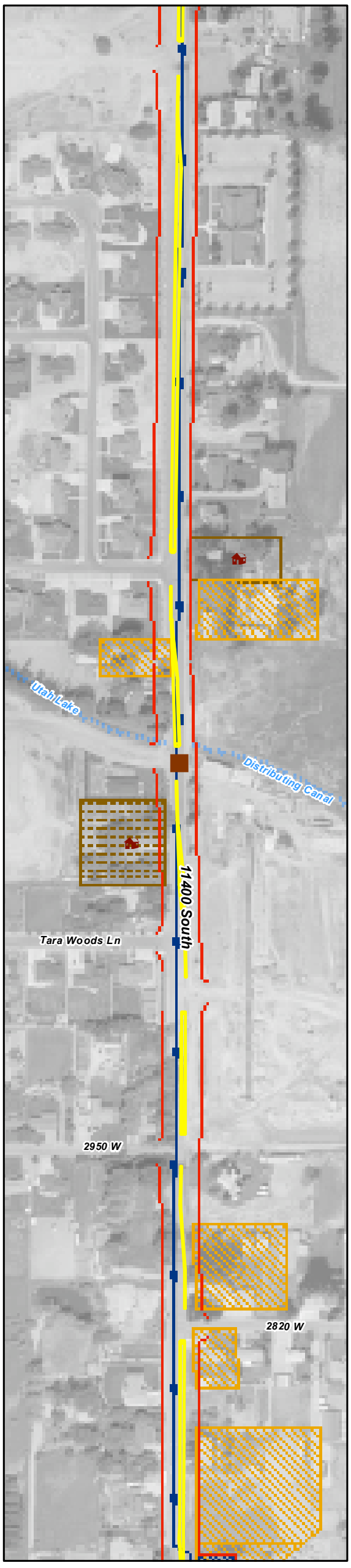
Alternative 7 Details
10600 South: River Front Parkway to Jordan Gateway

11400 SOUTH
Environmental Impact Statement

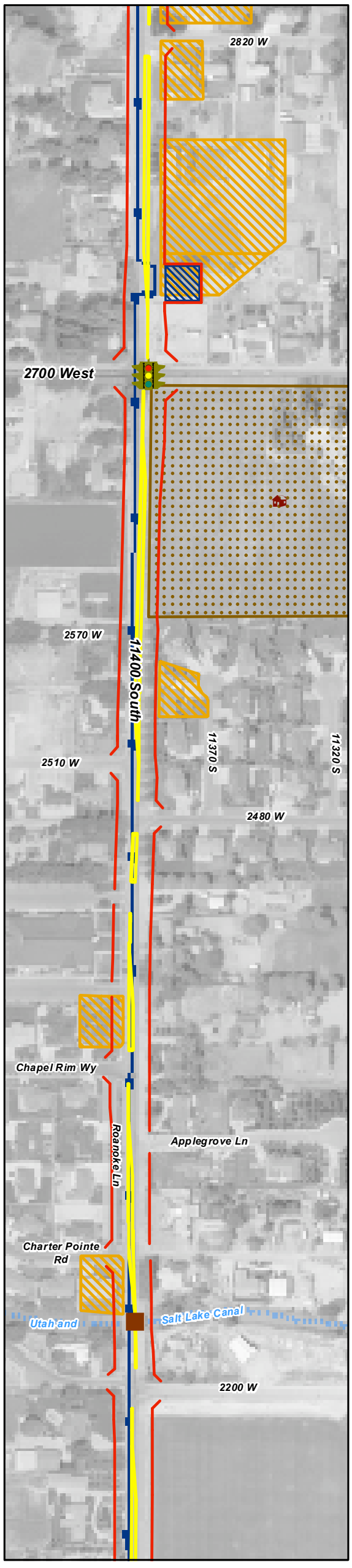
Panel 1



Panel 2

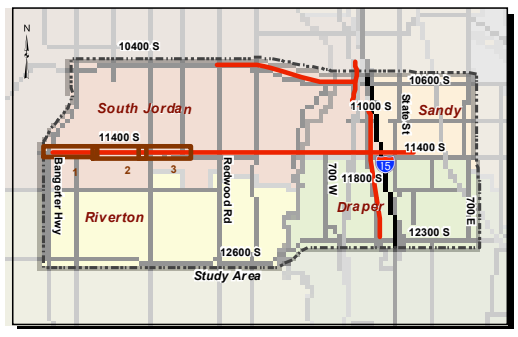


Panel 3



Alternative Right-of-Way Line
Raised Median
Proposed Retaining Wall
Relocation
Relocation from Other Project
Historic Relocation
Historic Strip Take
Historic Property
Major Signalized Intersection
Existing Detention Pond
Proposed Detention Pond
Existing Storm Drain Pipe
Proposed Storm Drain Pipe
Existing Stream/Canal
Outfall Relocation
Historic Canal

300 0 300 600 Feet



Panel Extent
Alternative 7

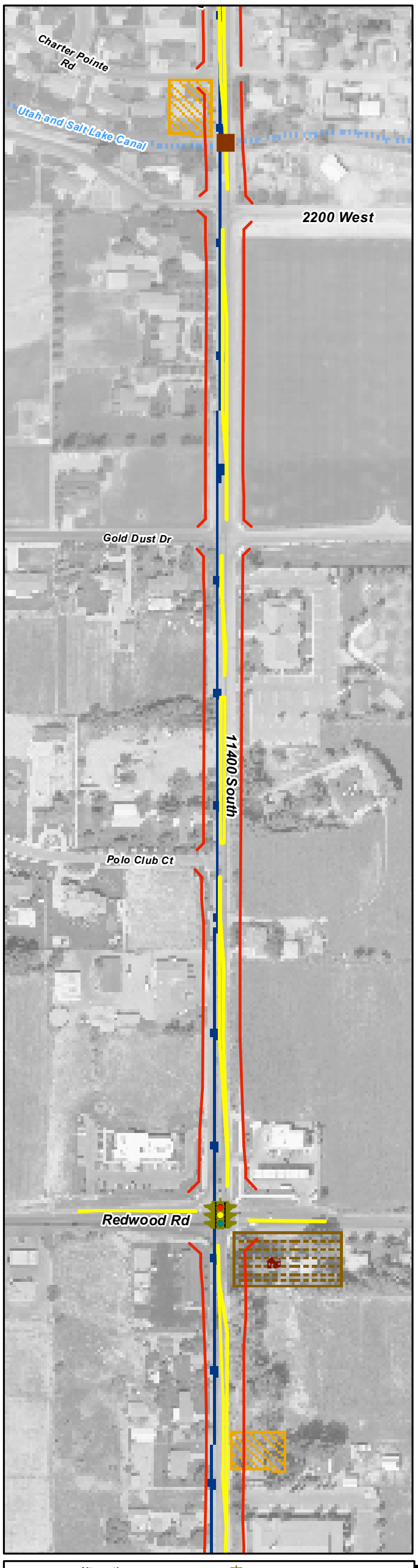
2005

Figure 2-20d.

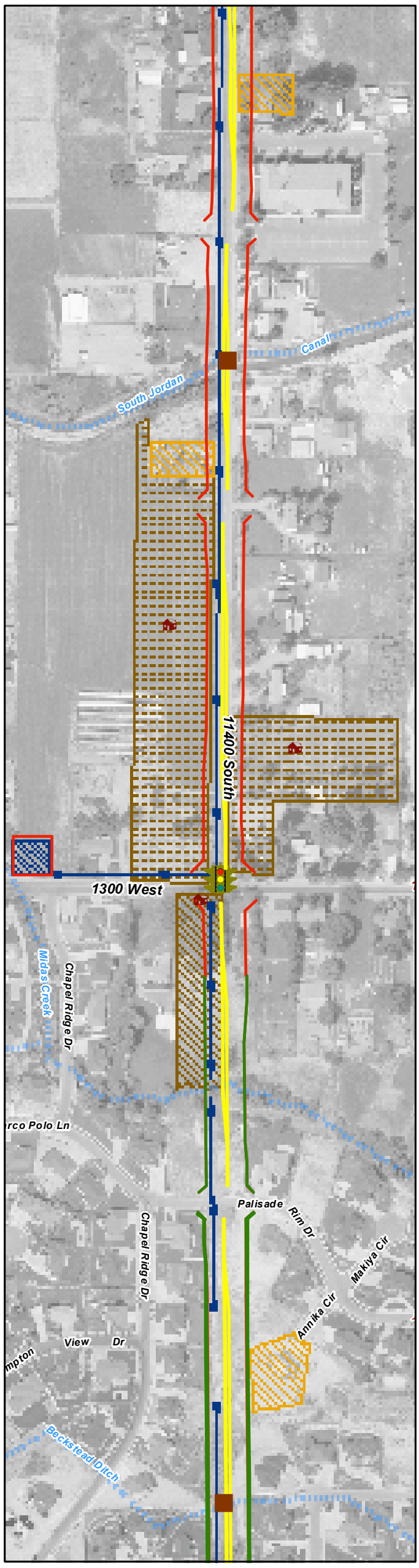
Alternative 7 Details
11400 South: Bangerter Highway to 2200 West

11400 SOUTH
Environmental Impact Statement

Panel 1

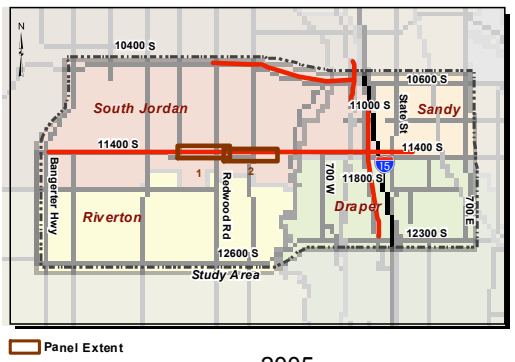


Panel 2



Alternative Right-of-Way Line
Raised Median
Proposed Retaining Wall
Relocation
Relocation from Other Project
Historic Relocation
Historic Strip Take
Historic Property
Major Signalized Intersection
Existing Detention Pond
Proposed Detention Pond
Existing Storm Drain Pipe
Proposed Storm Drain Pipe
Existing Stream/Canal
Outfall Relocation
Historic Canal

300 0 300 600 Feet



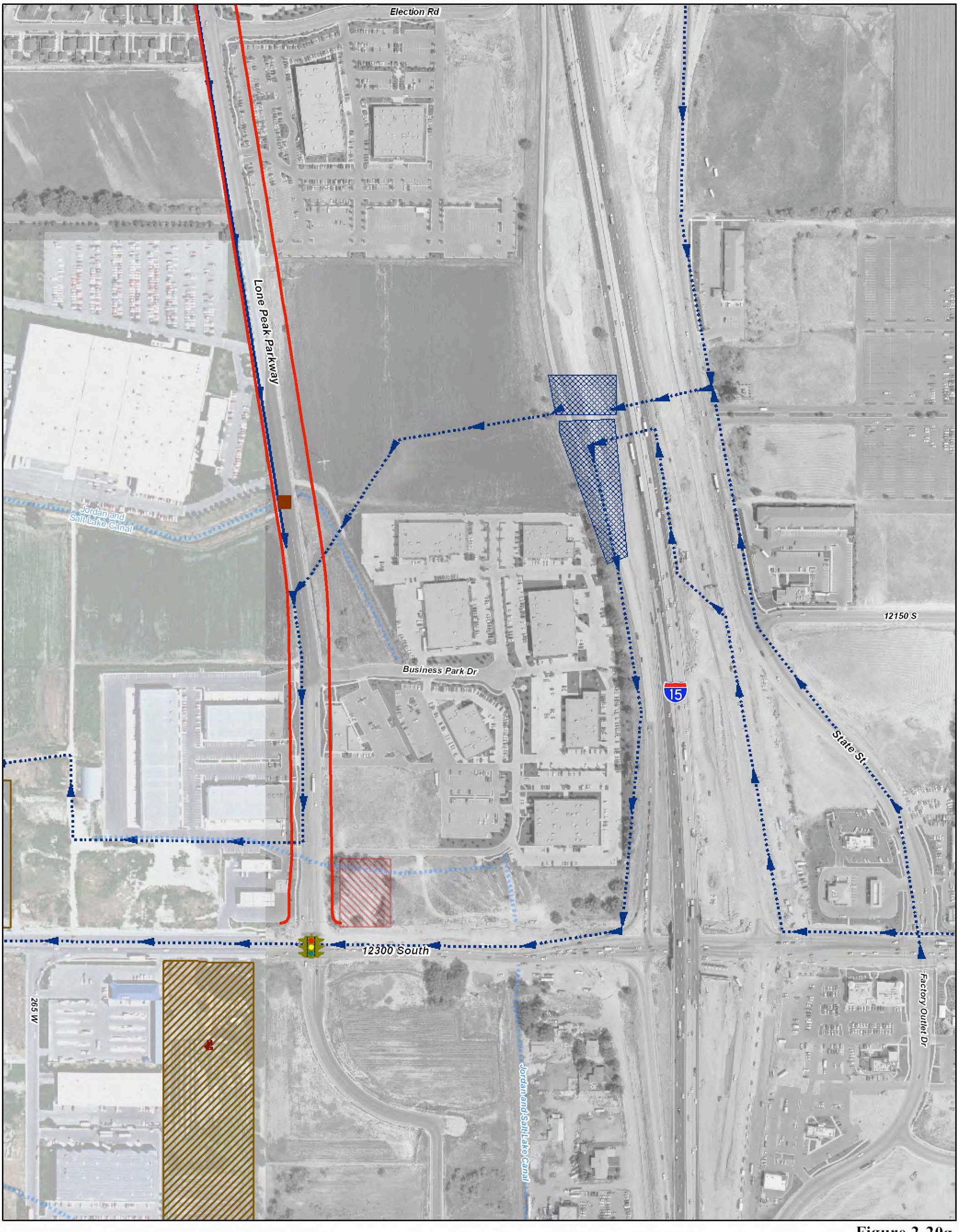
2005

Figure 2-20e.

Alternative 7 Details
11400 South: 2200 West to Beckstead Ditch

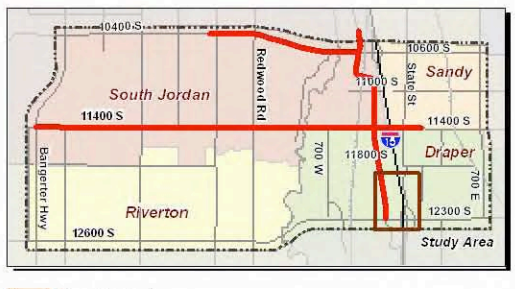
11400 SOUTH
Environmental Impact Statement

11400
SOUTH
Environmental Impact Statement



Alternative Right-of-Way Line
Raised Median
Proposed Retaining Wall
Relocation
Relocation from Other Project
Historic Relocation
Historic Strip Take
Historic Property
Major Signalized Intersection
Existing Detention Pond
Proposed Detention Pond
Existing Storm Drain Pipe
Proposed Storm Drain Pipe
Existing Stream/Canal
Outfall Relocation
Historic Canal

300 0 300 600 Feet



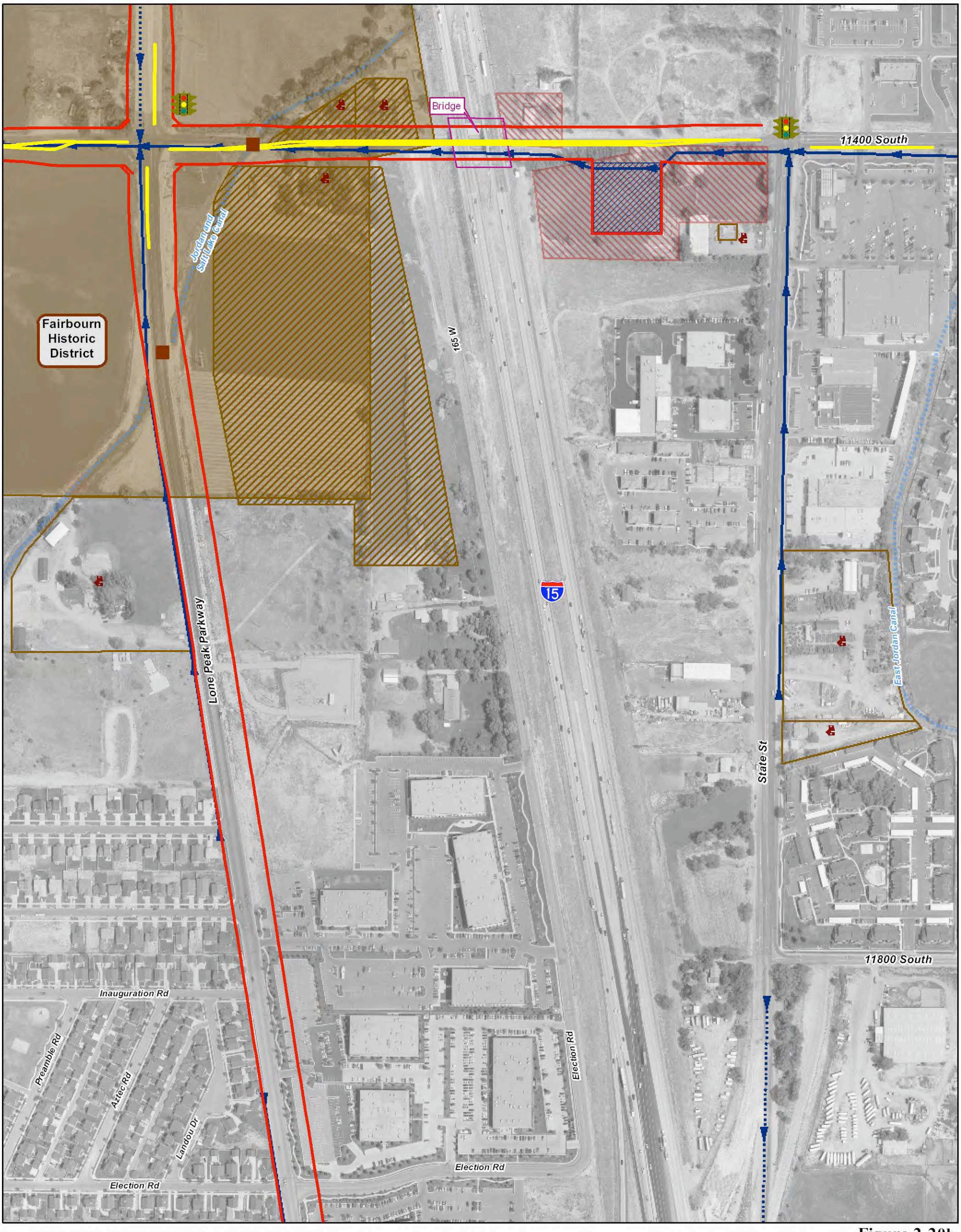
Panel Extent
Alternative 7

2005

Figure 2-20g.

Alternative 7 Details
Lone Peak Parkway: 12300 South to Election Road

11400 SOUTH
Environmental Impact Statement



Alternative Right-of-Way Line
Raised Median
Proposed Retaining Wall
Relocation
Relocation from Other Project
Historic Relocation
Historic Strip Take
Historic Property
Major Signalized Intersection
Existing Detention Pond
Proposed Detention Pond
Existing Storm Drain Pipe
Proposed Storm Drain Pipe
Existing Stream/Canal
Outfall Relocation
Historic Canal

300 0 300 600 Feet

Panel Extent
Alternative 7

Figure 2-20h.

Alternative 7 Details
Lone Peak Parkway: Election Road to 11400 South;
11400 South: 300 West to State Street

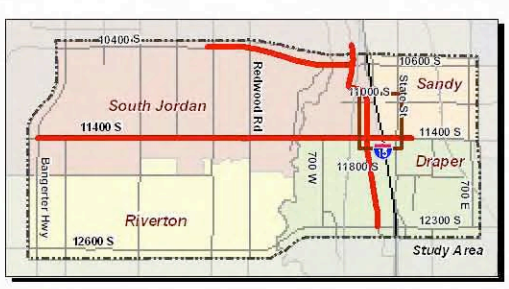
11400 SOUTH
Environmental Impact Statement

2005

11000 S
Jordan Gateway
Automall Dr
11000 South
Automall Dr
State St
15
Jordan and Salt Lake Canal
Fairbourn Historic District
South Jordan Sandy
Bridge
11400 South
Jordan and Salt Lake Canal
165 W

Alternative Right-of-Way Line
Raised Median
Proposed Retaining Wall
Relocation
Relocation from Other Project
Historic Relocation
Historic Strip Take
Historic Property
Major Signalized Intersection
Existing Detention Pond
Proposed Detention Pond
Existing Storm Drain Pipe
Proposed Storm Drain Pipe
Existing Stream/Canal
Outfall Relocation
Historic Canal

300 0 300 600 Feet



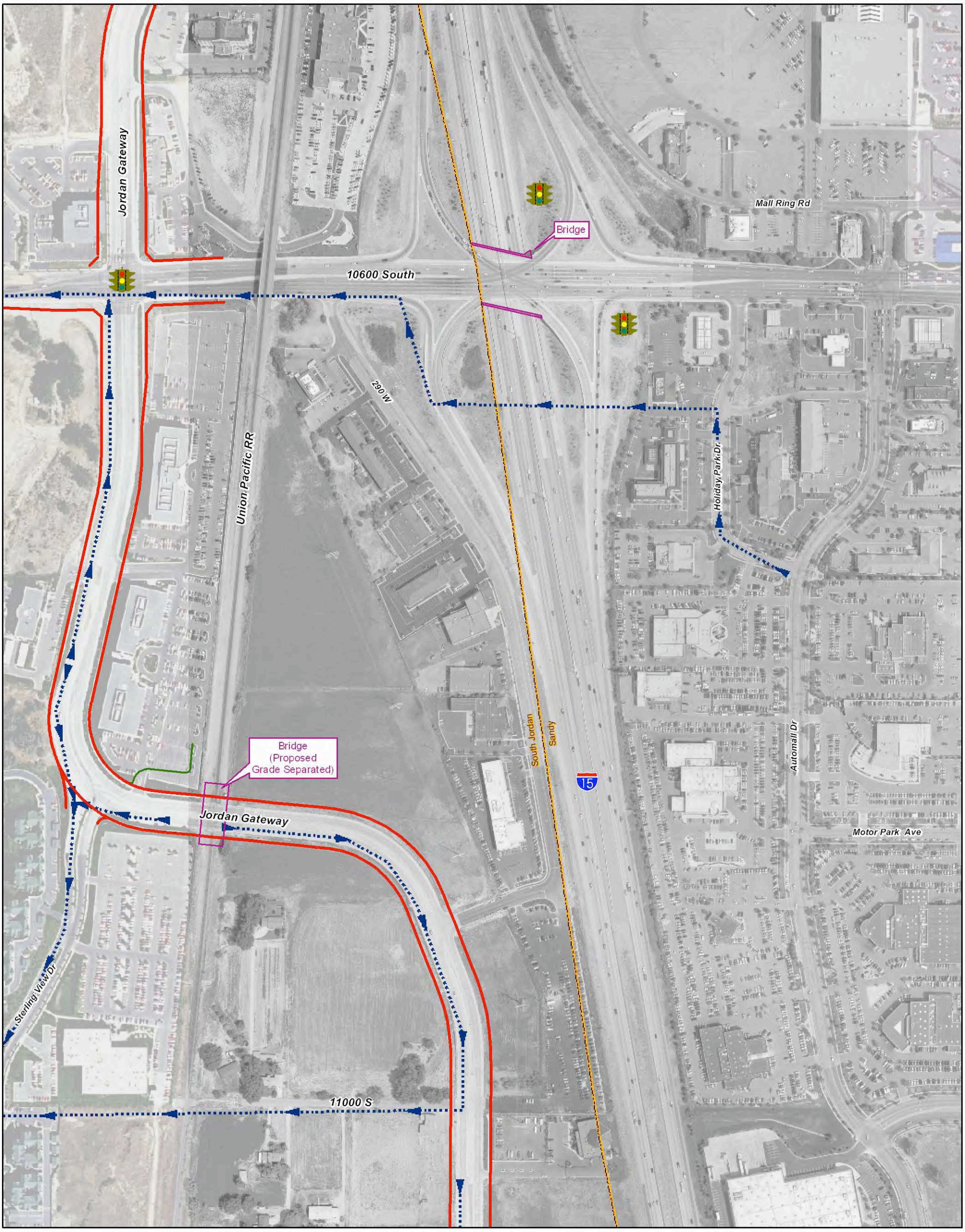
Panel Extent
Alternative 7

2005

Figure 2-20i.

Alternative 7 Details
Jordan Gateway: 11400 South to 11000 South

11400 SOUTH
Environmental Impact Statement



Alternative Right-of-Way Line
Raised Median
Proposed Retaining Wall
Relocation
Relocation from Other Project
Historic Relocation
Historic Strip Take
Historic Property
Major Signalized Intersection
Existing Detention Pond
Proposed Detention Pond
Existing Storm Drain Pipe
Proposed Storm Drain Pipe
Existing Stream/Canal
Outfall Relocation
Historic Canal

300 0 300 600 Feet

Panel Extent
Alternative 7

2005

Figure 2-20j.

Alternative 7 Details
Jordan Gateway: 11000 South to 10600 South;
I-15: 10600 South

11400 SOUTH
Environmental Impact Statement